United Nations

Framework Convention on Climate Change

FCCC/ARR/2017/MLT*

Distr.: General
25 January 2018

English only

Report on the individual review of the annual submission of Malta submitted in 2017**

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual greenhouse gas (GHG) inventory covering emissions and removals of GHG emissions for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2017 annual submission of Malta, conducted by an expert review team in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol". The review took place from 25 to 30 September 2017 in Bonn, Germany.

* Reissued for technical reasons on 7 March 2018.

** In the symbol for this document, 2017 refers to the year in which the inventory was submitted, not to the year of publication.

GE.18-01027(E)

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Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AAU	assigned amount unit
AD	activity data
Annex A sources	source categories included in Annex A to the Kyoto Protocol
Annex I Party	Party included in Annex I to the Convention
Article 8 review guidelines	"Guidelines for review under Article 8 of the Kyoto Protocol"
AWMS	animal waste management system
CER	certified emission reduction
CH_4	methane
CM	cropland management
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COPERT	computer programme to calculate emissions from road transport
CORINE	coordination of information on the environment
CPR	commitment period reserve
CRF	common reporting format
DOC	degradable organic carbon
DOC_f	fraction of degradable organic carbon dissimilated
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
$F_{IND-COM}$	fraction of industrial and commercial co-discharged protein into the sewer system
FM	forest management
FMRL	forest management reference level
$FMRL_{-corr}$	technical correction to the forest management reference level
$F_{NON-CON}$	fraction of non-consumed protein added to wastewater
FOD	first order decay
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
HWP	harvested wood products
IE	included elsewhere
IEF	implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ISO	International Organization for Standardization
k	methane generation rate constant
KP-LULUCF activities	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
Kyoto Protocol Supplement	*2013 Revised Supplementary Methods and Good Practice Guidance*

	Arising from the Kyoto Protocol
kt	kilotonne
LPG	liquefied petroleum gas
LULUCF	land use, land-use change and forestry
MCF	methane conversion factor
MMS	manure management system
MRA	Malta Resources Authority
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NACE	Nomenclature of Economic Activities
NCV	net calorific value
NE	not estimated
Nex	nitrogen excretion
NH_3	ammonia
NIR	national inventory report
NO	not occurring
NO_X	nitrogen oxides
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
QMS	quality management system
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SIAR	standard independent assessment report
SOC	soil organic carbon
SWDS	solid waste disposal site
UNFCCC	United Nations Framework Convention on Climate Change
UNFCCC Annex I inventory reporting guidelines	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories"
UNFCCC review guidelines	"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention"
VS	volatile solids
WDR	wetland drainage and rewetting
Wetlands Supplement	*2013 Supplement to the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories: Wetlands*

I. Introduction[1]

1. This report covers the review of the 2017 annual submission of Malta organized by the secretariat, in accordance with the Article 8 review guidelines (decision 22/CMP.1, as revised by decision 4/CMP.11). In accordance with the Article 8 review guidelines, this review process also encompasses the review under the Convention as described in the UNFCCC review guidelines, particularly in part III thereof, namely the "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention" (decision 13/CP.20). The review took place from 25 to 30 September 2017 in Bonn, Germany, and was coordinated by Ms. Lisa Hanle, Ms. Alma Jean and Mr. Simon Wear (secretariat). Table 1 provides information on the composition of the ERT that conducted the review of Malta.

Table 1
Composition of the expert review team that conducted the review of Malta

Area of expertise	*Name*	*Party*
Generalist	Ms. Mausami Desai	United States of America
	Ms. Jolanta Merkeliene	Lithuania
Energy	Mr. Naofumi Kosaka	Japan
	Ms. Brooke Perkins	Australia
	Mr. Michael Smith	New Zealand
IPPU	Mr. Kendal Blanco-Salas	Costa Rica
	Mr. Ils Moorkens	Belgium
	Mr. Ioannis Sempos	Greece
Agriculture	Ms. Marta Alfaro	Chile
	Ms. Fatou Gaye	Gambia
	Ms. Alice Ryan	New Zealand
LULUCF	Ms. Esther Mertens	Belgium
	Mr. Koki Okawa	Japan
	Mr. Igor Onopchuk	Ukraine
	Mr. Iordanis Tzamtzis	Greece
Waste	Mr. Mark Hunstone	Australia
	Mr. Gabor Kis-Kovacs	Hungary
	Mr. Phindile Mangwana	South Africa
Lead reviewers	Ms. Alfaro	
	Mr. Hunstone	

2. The basis of the findings in this report is assessment by the ERT of the consistency of the Party's 2017 annual submission with the Article 8 review guidelines. The ERT has

[1] At the time of publication of this report, Malta had submitted its instrument of ratification of the Doha Amendment; however, the amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the amendment.

made recommendations that Malta resolve the findings related to issues,[2] including issues designated as problems.[3] Other findings, and, if applicable, the encouragements of the ERT to Malta to resolve them, are also included.

3. A draft version of this report was communicated to the Government of Malta, which provided no comments.

4. Annex I shows annual GHG emissions for Malta, including totals excluding and including the LULUCF sector, indirect CO_2 emissions and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from KP-LULUCF activities, if elected, by gas, sector and activity for Malta.

5. Information to be included in the compilation and accounting database can be found in annex II.

II. Summary and general assessment of the 2017 annual submission

6. Table 2 provides the assessment by the ERT of the annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.

Table 2
Summary of review results and general assessment of the inventory of Malta

Assessment				*Issue or problem ID#(s) in table 3 and/or 5[a]*
Dates of submission	Original submission: 29 May 2017 (NIR), 8 May 2017, Version 4 (CRF tables), 26 September 2017 (SEF-CP2-2016) Revised submission: 15 June 2017, Version 5 (CRF tables) Unless otherwise specified, the values from the latest submission are used in this report			
Review format	Centralized			
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	1. Have any issues been identified in the following areas:	(a) Identification of key categories	No	
		(b) Selection and use of methodologies and assumptions	Yes	E.16, E.27, I.6, L.14, W.4
		(c) Development and selection of EFs	Yes	E.11, E.17, E.25, E.26, A.4, A.12, A.24, A.32, W.18
		(d) Collection and selection of AD	Yes	I.14, A.2, A.3, KL.5
		(e) Reporting of recalculations	No	
		(f) Reporting of a consistent time series	Yes	E.12, E.17, E.20, E.21, I.4, I.14,

[2] Issues are defined in decision 13/CP.20, annex, paragraph 81.
[3] Problems are defined in decision 22/CMP.1, annex, paragraphs 68 and 69, as revised by decision 4/CMP.11.

Assessment			*Issue or problem ID[a](s) in table 3 and or 5[a]*
			A.2, A.3, A.23, A.34
	(g) Reporting of uncertainties, including methodologies	Yes	G.6, G.7, G.8, L.3
	(h) QA/QC	QA/QC procedures were assessed in the context of the national system (see para. 2 in this table)	
	(i) Missing categories/completeness[b]	Yes	I.2, I.7, I.14, L.17
	(j) Application of corrections to the inventory	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	Yes	G.17
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	Yes	
Supplementary information under the Kyoto Protocol	2. Have any issues been identified related to the national system:		
	(a) The overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements	No	
	(b) Performance of the national system functions	No	
	3. Have any issues been identified related to the national registry:		
	(a) Overall functioning of the national registry	No	
	(b) Performance of the functions of the national registry and the technical standards for data exchange	No	
	4. Have any issues been identified related to reporting of information on ERUs, CERs, AAUs and RMUs and on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, taking into consideration any findings or recommendations contained in the SIAR?	Yes	G.20
	5. Have any issues been identified in matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, including any changes since the previous annual submission?	Yes	G.12
	6. Have any issues been identified related to the reporting of LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, as follows:		
	(a) Reporting requirements in decision 2/CMP.8,	Yes	KL.1, KL.2,

Assessment			*Issue or problem ID(s) in table 3 and or 5*[a]
	annex II, paragraphs 1–5		KL.3, KL.5
	(b) Demonstration of methodological consistency between the reference level and reporting on forest management in accordance with decision 2/CMP.7, annex, paragraph 14	No	
	(c) Reporting requirements of decision 6/CMP.9	Yes	KL.8
	(d) Country-specific information to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	NA	
CPR	Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	No	G.14
Adjustments	Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	No	
	Did the Party submit a revised estimate to replace a previously applied adjustment?	NA	Malta does not have a previously applied adjustment
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No	
Question of implementation	Did the ERT list a question of implementation?	No	

[a] The ERT identified additional issues and/or problems in all sectors that are not listed in this table but are included in table 3 and/or 5.

[b] Missing categories for which methods are provided in the 2006 IPCC Guidelines may affect completeness and are listed in annex III.

III. Status of implementation of issues and/or problems raised in the previous review report

7. Table 3 compiles all the recommendations made in previous review reports that were included in the previous review report, published on 21 July 2017.[4] For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2017 annual submission and provided the

[4] FCCC/ARR/2016/MLT.

rationale for its determination, which takes into consideration the publication date of the previous review report and national circumstances.

Table 3
Status of implementation of issues and/or problems raised in the previous review report of Malta

ID#	*Issue and/or problem classification[a]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
General			
G.1	CRF tables (G.1, 2016) (G.1, 2015) (table 3, 2013) Completeness	Estimate CO_2, CH_4 and N_2O emissions from gasoline consumption in navigation (for 1990–2004).	Resolved. CO_2, CH_4 and N_2O emissions from gasoline consumption in navigation have been estimated.
G.2	CRF tables (G.2, 2016) (G.2, 2015) (table 3, 2013) Completeness	Estimate CH_4 and N_2O emissions from biomass consumption in residential.	Resolved. CH_4 and N_2O emissions from biomass consumption in residential have been estimated.
G.3	QA/QC and verification (G.6, 2016) (G.6, 2015) (table 3, 2013) (17, 2012) (18, 2011) Adherence to the UNFCCC Annex I inventory reporting guidelines	Develop a QA/QC plan, in particular tier 1 QC procedures, and provide information on the QA/QC plan in the NIR.	Addressing. A formally documented GHG inventory QA/QC system for the inventory process was concluded in August 2017 and provided to the ERT during the review week. The implementation of the system started in the current reporting cycle, and the first results thereof should be evident in the 2018 submission of Malta's GHG inventory. The NIR still lacks detailed information on the newly established QA/QC system.
G.4	QA/QC and verification (G.14, 2016) (G.14, 2015) Transparency	Elaborate an inventory QA/QC plan, implement general inventory QC procedures in accordance with the QA/QC plan and report information on these issues in the NIR.	Addressing. See ID# G.3 above. Given the timing of the finalization of the plan, procedures in accordance with the plan were not implemented in time for the 2017 annual submission.
G.5	QA/QC and verification (G.19, 2016) (G.19, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Complete the quality manual and standard QC operating procedures and implement them to ensure consistent reporting between the CRF tables and the NIR.	Addressing. A formally documented GHG inventory QA/QC system for the inventory process was concluded in August 2017. Although the issue of inconsistent reporting of information between the NIR and the CRF tables identified in the previous review report has not been fully resolved, the ERT is of the view that this issue is being assessed in the context of ID#s G.3 and G.4 above. During the review, the Party indicated that it had resubmitted revised CRF tables in June 2017, which may be the reason for the observed differences.
G.6	Uncertainty analysis (G.9, 2016) (G.9, 2015) (table 4, 2013) (14, 2012) Transparency	Improve the transparency of the uncertainty analysis by including information on the assumptions used to calculate the uncertainty of AD and EFs at the category level.	Not resolved. During the review, the Party recognized that more detailed information needs to be provided in the NIR on how uncertainty analysis is carried out, particularly at the sector level. The Party stated that it will strive to expand on this in future

ID#	*Issue and/or problem classification*[a]	*Recommendation made in previous review report*	*ERT assessment and rationale*
			annual submissions. To date, across all sectors, uncertainty values for AD and EFs have been derived largely from the 2006 IPCC Guidelines or taken from previous inventories; where available, uncertainties provided by data providers have also been utilized. In future, additional sources such as uncertainty values from EU ETS reports and an ongoing project on projections will be used.
G.7	Uncertainty analysis (G.10, 2016) (G.10, 2015) (table 4, 2013) (14, 2012) Transparency	Provide information to explain how the uncertainty analysis is used to prioritize further inventory improvements.	Not resolved. During the review, the Party indicated that it will strive to expand on this in future annual submissions. The Party's plans to improve the uncertainty analysis (see ID# G.6 above) should enhance the quality of the uncertainty analysis for future annual submissions and provide a more robust basis for planning inventory improvements, in conjunction with other QA/QC approaches.
G.8	Uncertainty analysis (G.20, 2016) (G.20, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Discuss qualitatively the uncertainty of the data used for all source and sink categories in a transparent manner in the NIR, in particular for categories identified as key categories.	Not resolved. See the rationale provided for ID# G.6 above.
G.9	Inventory preparation (G.11, 2016) (G.11, 2015) (10, 2013) Transparency	Provide more detailed information on the inventory preparation process.	Resolved. The inventory preparation process has been sufficiently explained in the NIR (pp.6, 7, 9 and 10).
G.10	Inventory management (G.12, 2016) (G.12, 2015) (11, 2013) (20, 2012) (20, 2011) Transparency	Provide further information on current practices relating to data collection, data assessment and archiving, including documentation on QA/QC procedures.	Resolved. The ERT finds that the information in the NIR on practices relating to data collection and data assessment is sufficient (pp.6, 7, 9 and 10).
G.11	Key category analysis (G.16, 2016) (G.16, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Correct the cut-off criteria for the key category analysis.	Resolved. In the key category analysis, the category that resulted in the analysis surpassing the threshold of 95 per cent of total GHG emissions was included as a key category.
G.12	Article 3, paragraph 14, of the Kyoto Protocol (G.21, 2016) (G.21, 2015) Adherence to reporting guidelines under Article 7, paragraph 1,	Include, as appropriate, information on the minimization of adverse impacts in accordance with decision 15/CMP.1, annex, paragraphs 23 and 24, including any changes since the previous annual submission.	Not resolved. Relevant information was not included in the NIR. During the review, the Party informed the ERT that it is considering what type of information should be reported in the NIR in respect of this provision, and that it will start providing

ID#	*Issue and/or problem classification*[a]	*Recommendation made in previous review report*	*ERT assessment and rationale*
	of the Kyoto Protocol		relevant information from the next annual submission.
G.13	National registry (G.22, 2016) (G.22, 2015) Adherence to reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol	Report in the NIR any changes to the national registry (compared with the information in the previous submission) in accordance with chapter G titled "Changes in national registries", contained in the annex to decision 15/CMP.1.	Resolved. Changes to the national registry have been reported in the NIR (p.187).
G.14	Commitment period reserve (G.23, 2016) (G.23, 2015) Adherence to reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol	Report, in the NIR (chapter 12, titled "Information on accounting of Kyoto units") the CPR and the method used to calculate it.	Not resolved. Information on how the CPR was calculated was not included in the NIR. During the review, the Party indicated that the calculation of the CPR was reported in Malta's report to facilitate the calculation of its assigned amount (FCCC/IRR/2016/MLT) and is equal to 8 369 793 t CO_2 eq, determined as 90 per cent of the assigned amount. The ERT agrees that the CPR value is correct, but notes that information on how the CPR was calculated was not included in the NIR and this is a mandatory requirement. The Party indicated that the calculation of the CPR will be included in the NIR in future annual submissions.
G.15	Kyoto Protocol units (G.24, 2016) (G.24, 2015) Adherence to reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol	Report the SEF tables for reporting Kyoto Protocol units.	Resolved. SEF tables were not included with Malta's 2017 annual submission; however, during the review (on 26 September 2017), SEF tables filled in with the notation key "NO" were generated and submitted (see ID# G.20 in table 5).
Energy			
E.1	1. General (energy sector) (E.3, 2016) (E.3, 2015) (16, 2013) (28, 2012) Comparability	Allocate AD and emissions to the appropriate subcategories in order to improve the comparability of the emission estimates with those of other Annex I Parties.	Addressing. Noting the outstanding recommendations on this issue from the previous report (see ID#s E.14 and E.16 below), the Party is still addressing this issue.
E.2	1. General (energy sector) (E.5, 2016) (E.5, 2015) (17, 2013) (31, 2012) Adherence to the UNFCCC Annex I inventory reporting	Elaborate a QA/QC plan for the energy sector (which accounts for almost 90 per cent of total GHG emissions in the country) as required by the UNFCCC Annex I inventory reporting guidelines.	Addressing. During the review, the Party stated that work by MRA is ongoing on the documentation of inventory processes undertaken, which will eventually become a formally documented QA/QC system (see ID# G.5 above).

ID[a]	Issue and or problem classification[a]	Recommendation made in previous review report	ERT assessment and rationale
	guidelines		
E.3	1. General (energy sector) (E.6, 2016) (E.6, 2015) (18, 2013) Transparency	Improve the description in the NIR of the category-specific QA/QC activities performed on the AD, with the objective of better understanding the links between the EU ETS, the energy balances and the data reported in the CRF tables.	Not resolved. During the review, the Party explained that additional information and clarifications will be included in future annual submissions.
E.4	1. General (energy sector) (E.7, 2016) (E.7, 2015) (18, 2013) Transparency	Include copies of the national energy balance for the latest reported year, outlining the final energy consumption by sector.	Not resolved. During the review, the Party explained that copies of the national energy balance will be included in future annual submissions.
E.5	Fuel combustion – reference approach (E.11, 2016) (E.11, 2015) (23, 2013) (33, 2012) (33, 2011) Adherence to the UNFCCC Annex I inventory reporting guidelines	Estimate CO_2 emissions using the reference approach for all years of the time series	Addressing. In the previous annual submission, CO_2 emissions for the reference approach had been reported for the years 2009–2014 only. In the 2017 annual submission, the Party has reported estimates using the reference approach for all years of the time series for liquid fuels. Although biomass was reported for the sectoral approach for 2003 onward, it was reported for the reference approach for 2010 onward only. Use of solid fuels has been reported for the sectoral approach but not for the reference approach.
E.6	Fuel combustion – reference approach (E.12, 2016) (E.12, 2015) (23, 2013) Transparency	Explain differences in CO_2 emissions which are above 2.0 per cent.	Not resolved. For example, the difference between approaches in the estimates for liquid fuels for 2013 is –19.7 per cent or 489.02 kt. There are no explanations for such differences in the NIR. During the review, the Party explained that every effort is made to identify the source of discrepancies in data, but that, in some cases, the absolute figures are so low that a relatively small discrepancy results in a high percentage discrepancy.
E.7	Fuel combustion – reference approach (E.34, 2016) (E.34, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Correct the discrepancies between CRF table 1.A(c) and the NIR for the differences in energy consumption between the reference and sectoral approaches.	Not resolved. There are significant differences between the values reported in NIR table 3-1 and CRF table 1.A(c). For example, for liquid fuels in NIR table 3-1 a difference of –5.2 per cent in the estimate between the reference and sectoral approaches has been reported, while in CRF table 1.A(c) a difference of 3.1 per cent for 2015 has been reported.

ID#	*Issue and/or problem classification*[a]	*Recommendation made in previous review report*	*ERT assessment and rationale*
E.8	Fuel combustion – reference approach (E.35, 2016) (E.35, 2015) Transparency	Estimate the apparent energy consumption (excluding non-energy use, reductants and feedstocks) for solid, gaseous and[3] other fossil fuels using the reference approach and report the estimates in CRF table 1.A(c).	Addressing. The Party has reported values for apparent energy consumption (excluding non-energy use, reductants and feedstocks) for solid and gaseous fuels for 2010 onward (in the previous annual submission, notation keys were used for the entire time series). However, the Party has not reported any apparent consumption for other fossil fuels for these same years. Furthermore, the Party reported "NO" for solid fuels for 1990–1995, when solid fuel consumption was reported under the sectoral approach.
E.9	Fuel combustion – reference approach (E.36, 2016) (E.36, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Correct the notation keys for the AD for solid and other fossil fuels in NIR table 3-1 and CRF table 1.A(c).	Not resolved. In NIR table 3-1 "NA" has been reported for AD for solid and other fossil fuels, while in CRF table 1.A(c) "NO, NE, NA" has been reported for solid fuels and "NA, NE" for other fossil fuels. During the review, the Party reported that the notation keys used will be corrected in the next annual submission.
E.10	Feedstocks, reductants and other non-energy use of fuels (E.18, 2016) (E.18, 2015) (28, 2013) Transparency	Increase the transparency in the reporting of feedstocks and non-energy use of fuels, both in the CRF tables and in the NIR, by providing verifiable information that lubricants in transport (including disposal) and bitumen for road paving are not used in the country.	Addressing. Malta has reported "IE" for lubricants and bitumen in CRF table 1.A(d) although it is not clear where emissions are reported (see ID# G.19 in table 5). During the review, the Party reported that the figures on feedstocks and non-energy use of fuels have been reconciled with those reported by Eurostat and that these will be recorded accordingly in the CRF tables and in the NIR in the next annual submission.
E.11	1.A.1.a Public electricity and heat production – liquid fuels – CO_2, CH_4 and N_2O (E.20, 2016) (E.20, 2015) (29, 2013) Accuracy	For the only two power plants, use the plant-specific EFs as well as the NCVs available from the annual EU ETS reports as far back as possible.	Not resolved. During the review, the Party reported that plant-specific emission estimates, oxidation factors and NCVs will be used as obtained from the annual reports submitted by the operators of the two power plants in accordance with EU directive 2003/87/EC establishing an emissions trading system.
E.12	1.A.1.a Public electricity and heat production – liquid fuels – CO_2, CH_4 and N_2O (E.22, 2016) (E.22, 2015) (29, 2013) Consistency	Consider using the averages of NCV factors for the period 1990–2004, while duly considering the fuel mix.	Addressing. Malta has made recalculations for the period 1990–2004 using updated AD. During the review, the Party reported that emissions from power generation using the averages of NCV factors for the period 1990–2004 have been estimated and will be reported

ID#	*Issue and or problem classification[a]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
			accordingly in the next annual submission.
E.13	1.A.1.a Public electricity and heat production – liquid fuels – CO_2, CH_4 and N_2O (E.23, 2016) (E.23, 2015) (29, 2013) Transparency	Report estimates, including any relevant information such as NCVs, oxidation factors, EFs and AD used for the estimation of emissions, in the NIR.	Not resolved. Plant-specific NCVs, oxidation factors, EFs and AD have not been reported (see ID# E.11 above). During the review, the Party reported that estimates will be reported in the next NIR.
E.14	1.A.2 Manufacturing industries and construction – – liquid fuels – CO_2, CH_4 and N_2O (E.24, 2016) (E.24, 2015) (30, 2013) (41, 2012) (39, 2011) Comparability	Allocate the AD and emissions to the appropriate subcategories, in line with the UNFCCC reporting guidelines, in order to improve comparability with other Annex I Parties.	Addressing. The NIR provides an update on the collection and revision of data due to occur in 2017. During the review, the Party reported that disaggregation of emissions to the appropriate subcategory is subject to data availability at the level of the NACE two-digit subcategory. The Party noted that, in the case of manufacturing, the amount of emissions is very small and data at the NACE two-digit level are either limited or confidential.
E.15	1.A.2 Manufacturing industries and construction – – liquid fuels – CO_2, CH_4 and N_2O (E.25, 2016) (E.25, 2015) (31, 2013) Comparability	Report the AD and emissions for the biogenic fraction of biodiesel under biomass and the fossil fraction under liquid fuels.	Resolved. Consumption of 1.73 TJ biomass has been reported for 2015. During the review, the Party confirmed that the biodiesel figures reported include only the biogenic fraction of blended biodiesel. This figure is added to the biodiesel that is sold as B100 (pure biodiesel).
E.16	1.A.3.a Domestic aviation – liquid fuels – CO_2, CH_4 and N_2O (E.27, 2016) (E.27, 2015) (38, 2013) Accuracy	Make use of additional sources of information, such as Eurocontrol, which is based on higher-tier methods, as a supplementary QA activity to verify the fuel allocation for domestic and international uses.	Addressing. During the review, the Party reported that a comparative exercise with other sources of information, including Eurocontrol, is being carried out.
E.17	1.A.3.b Road transportation – liquid fuels – CO_2 (E.28, 2016) (E.28, 2015) (33, 2013) Consistency	Obtain data on the NCVs and carbon content from the fuel suppliers in order to develop and use a more accurate EF when estimating CO_2 emissions from gasoline; if such data are not available, use the default CO_2 EF from the 2006 IPCC Guidelines that is applicable to European gasoline passenger cars.	Addressing. The Party reported that it used the COPERT V model with a tier 3 approach for estimation for the period 2005–2016, while a tier 1 approach using default EFs as per the 2006 IPCC Guidelines was used for estimation for the period 1990–2004. No country-specific EFs have been reported. An exercise is under way to obtain data to allow for a tier 3 estimation approach to be used for the entire time series.

ID[a]	*Issue and/or problem classification[b]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
E.18	1.A.3.b Road transportation – liquid fuels – CO_2 (E.29, 2016) (E.29, 2015) (35, 2013) Comparability	Report the AD and emissions from the biogenic fraction of biodiesel under biomass and the fossil fraction under liquid fuels (given the blending of up to 7.0 per cent, at least 93.0 per cent of biodiesel consumption should be reported under liquid fuels and not under biomass).	Resolved. During the review, the Party confirmed that the biodiesel figures reported include only the biogenic fraction of blended biodiesel. This figure is added to the biodiesel that is sold as B100 (pure biodiesel). The Party also reported that the biodiesel figures attributed to road transportation are based on an informed assumption that takes into account the data obtained from a survey on the use of fuels in the economic sectors and deducts the resultant figure from the oil balance report (gross inland consumption (adjusted)). The Regulator for Energy and Water Services compiles data from the importers/wholesalers and a local producer of biodiesel on the quantity of biodiesel that is pre-blended with the imported diesel as well as the amount of biodiesel sold as unblended (B100) by petrol stations. These data are audited by third parties on an annual basis.
E.19	1.A.3.b Road transportation – liquid fuels – CO_2 (E.38, 2016) (E.38, 2015) Accuracy	Review the CO_2 IEF for gasoline in road transportation used for the years since 2009 and, if appropriate, explain the differences between the IEF used for the previous years reported and the IPCC default EF and demonstrate that the use of different IEFs does not render the time series inconsistent.	Resolved. Data revisions have been made and the CO_2 IEF is now relatively stable for 2009 onward, ranging from 68.10 kg/TJ to 70.29 kg/TJ.
E.20	1.A.3.b Road transportation – liquid fuels – CO_2, CH_4 and N_2O (E.37, 2016) (E.37, 2015) Consistency	Ensure the time-series consistency of the CO_2, CH_4 and N_2O emission estimates for liquid fuels in road transportation by using the same methodology (COPERT IV model) for the entire time series, or demonstrate in the NIR that the use of two different methodologies does not introduce inconsistencies in the time series.	Addressing. Malta has continued to use two different methods across the time series, namely the IPCC tier 1 method for the period 1990–2004 and the COPERT V model for after 2005. During the review, the Party reported that an exercise is being carried out to include pre-2005 data in the COPERT V model.
E.21	1.A.3.b Road transportation – liquid fuels – CO_2 and N_2O (E.39, 2016) (E.39, 2015) Consistency	Review the CO_2 and N_2O IEFs for cars for gasoline, diesel oil and LPG and explain any significant inter-annual changes and how the consistency of the time series is ensured.	Addressing. Emissions from road transportation for the period 2005–2016 were estimated using the COPERT V model using a tier 3 approach, while emissions covering the period 1990–2004 were estimated using a tier 1 approach. An exercise is being carried out to include pre-2005 data in the COPERT V model. An explanation of inter-annual changes has not been included in the NIR.

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E.22	1.A.5 Other (fuel combustion activities) – liquid fuels – CO_2, CH_4 and N_2O (E.41, 2016) (E.41, 2015) Transparency	Explain in the NIR the methodology, assumptions and sources of AD and EFs used to estimate and report CO_2, CH_4 and N_2O emissions from fuel use in the military (both stationary and mobile combustion) for the entire time series since 1990.	Not resolved. No additional information was provided in the NIR. During the review, the Party reported that the methodology, assumptions and sources of AD and EFs used to estimate and report CO_2, CH_4 and N_2O emissions from fuel use in the military (both stationary and mobile combustion) for the entire time series since 1990 will be explained in the NIR of the next annual submission.
E.23	1.A.5 Other (fuel combustion activities) – liquid fuels – CO_2, CH_4 and N_2O (E.41, 2016) (E.41, 2015) Comparability	Disaggregate the emissions between stationary and mobile combustion.	Addressing. During the review, the Party reported that the emissions have since been disaggregated between stationary and mobile combustion in the military sector and will be reported accordingly in the next annual submission.
IPPU			
I.1	2. General (IPPU) (I.1, 2016) (I.1, 2015) (42, 2013) (50, 2012) Adherence to the UNFCCC Annex I inventory reporting guidelines	Develop and implement QA/QC procedures for the IPPU sector.	Not resolved. No sector-specific QA/QC procedures for IPPU were identified during the 2017 review, except for those for electronics. During the review, the Party indicated that owing to limited resources the development of further sector-level QA/QC procedures is pending. Given the limited resources, it is the ERT's view that the Party could first focus on key categories when implementing this issue.
I.2	2.A.4 Other process uses of carbonates – CO_2 (I.5, 2016) (I.5, 2015) (48, 2013) Completeness	Investigate the extent of the use of carbonates in the production of ceramics (at least one company seems to produce ceramic products in Malta), calculate the emissions, if appropriate, and report on the results in the NIR.	Not resolved. Malta did not collect further information owing to lack of resources; however, the Party noted that efforts are being made to investigate other uses of carbonates (such as in ceramics) to allow MRA to respond to this issue in the future. The preliminary assessment of the ERT, based on information of the size of the companies, is that this category is likely to be below the significance threshold in terms of emissions; however, a description was not included in the NIR.
I.3	2.B.5 Carbide production – CO_2 (I.14, 2016) (I.14, 2015) (48, 2013) Transparency	Include in the NIR information on how CO_2 emissions from calcium carbide consumption have been estimated.	Resolved. Malta has included the information in the NIR (chapter 4.3.2).

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I.4	2.D.3 Other (non-energy products from fuels and solvent use) – CO_2 (I.10, 2016) (I.10, 2015) (51, 2013) (60, 2012) Consistency	Investigate the time-series inconsistency of the estimates of CO_2 emissions from road paving with asphalt, recalculate the emissions, if appropriate, and report on the findings in the NIR.	Addressing. Malta revised the time series for this category and described the recalculations in the NIR (chapter 4.5.4.1.4). The ERT noted that the Party changed the source of AD upon which the extrapolation back to 1990 was performed. In the 2016 submission, it was reported that for the years 1995–2003 the quantity of asphalt used was derived from data on asphalt imports and that for 2004 onward the AD were provided by Transport Malta. In the 2017 NIR it was reported that, since 2011, the quantity of asphalt used has been obtained annually from Transport Malta and that for the years prior to 2011 no consistent data source has been identified and therefore AD were back-extrapolated from the available data from Transport Malta. In addition, the ERT observed that the underlying AD from Transport Malta differed for the years 2011–2014 between the reporting in the 2016 and 2017 submissions. The reason for the change in the source of AD for 1990–2011 and the reason for the change in the AD provided by Transport Malta for the years 2011–2014 reported in the 2016 and 2017 annual submissions have not been described in the NIR. During the review, Malta confirmed that the years 2011–2014 were chosen to extrapolate emissions back to 1990 because reliable data were available for that period only and previous data were seen as a probable underestimation of activity. The ERT finds that the time series is not yet consistent and the Party has not demonstrated why extrapolation of emissions back to 1990 based on the AD for 2011–2016 leads to a consistent time series.
I.5	2.F Product uses as substitutes for ozone depleting substances – HFCs and PFCs (I.11, 2016) (I.11, 2015) (43, 2013) Transparency	Collect the necessary data to complete the background information tables for the reporting of F-gases (CRF table 2.II.F) in accordance with the UNFCCC Annex I inventory reporting guidelines.	Not resolved. The background tables were not completed owing to lack of resources. Malta stated that efforts are being made to analyse this situation in detail to allow it to adequately answer future questions thereon.
I.6	2.F.1 Refrigeration and	Proceed with the project to develop a	Not resolved. Malta made efforts to

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	air conditioning – HFCs and PFCs (I.12, 2016) (I.12, 2015) (44, 2013) Accuracy	better methodology for estimating emissions from refrigeration and air conditioning and report on the status in the NIR.	analyse the situation but did not proceed with the service agreement with a consultant to develop a better methodology, nor did Malta report on the efforts in the NIR. During the review, Malta stated that it is analysing the situation in detail to allow it to adequately address any future questions raised by the ERT on future inventory submissions.
I.7	2.F.1 Refrigeration and air conditioning – HFCs and PFCs (I.13, 2016) (I.13, 2015) (45, 2013) Completeness	As part of the planned project to develop a better methodology for estimating emissions from refrigeration and air conditioning, consider the import of F-gases in products and report on this in the NIR.	Not resolved. No better methodology was developed owing to lack of resources. This issue should be considered further in future reviews to ensure that there is no underestimation of emissions from imports of F-gases in products.
I.8	2.F.1 Refrigeration and air conditioning: commercial refrigeration – HFCs (I.15, 2016) (I.15, 2015) Transparency	Explain in the NIR that the EF used for equipment in stock also includes disposal emissions and ensure that the correct notation keys (e.g. "IE") are used for disposal emissions in CRF table 2(II).B-H.	Resolved. The NIR and the CRF tables submitted in 2017 include the relevant information (see NIR chapter 4.7.1.1.2 and CRF table 2(II).B-H).
I.9	2.F.1 Refrigeration and air conditioning: commercial refrigeration – HFCs (I.15, 2016) (I.15, 2015) Transparency	Ensure consistency between the notation keys used to report AD for "Filled into new manufactured products" and for "Remaining in products and decommissioning" ("NE") and the associated emissions (reported as "NO").	Not resolved. The notation keys have not been changed.
I.10	2.F.1 Refrigeration and air conditioning: transport refrigeration and stationary air conditioning – HFCs (I.16, 2016) (I.16, 2015) Transparency	Explain in the NIR the reasons why HFC emissions from disposal of transport refrigeration and other relevant equipment are not occurring; and how the EF for stationary air conditioning is assumed to include disposal emissions.	Resolved. The relevant information has been included in the NIR (chapter 4.7.1.3.2).
I.11	2.F.1 Refrigeration and air conditioning: transport refrigeration and stationary air conditioning – HFCs (I.16, 2016) (I.16, 2015) Transparency	Review the notation keys reported for disposal emissions in CRF table 2(II).B-H to ensure that the correct notation keys are used.	Not resolved. The notation keys reported in CRF table 2(II)B-Hs2 have not been corrected.
I.12	2.F.1 Refrigeration and air conditioning: transport refrigeration – HFCs (I.17, 2016) (I.17, 2015)	Explain in the NIR that the actual AD for refrigerated vehicles were obtained from Transport Malta and the National Statistics Office, and that the data indicate that the number of refrigerated vans and trucks was lower than the assumption of	Resolved. Malta included the relevant information in the NIR (chapter 4.7.1.3.2).

ID[a]	*Issue and or problem classification[a]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
	Transparency	1,900 vehicles reported in the original 2016 annual submission.	
I.13	2.F.1 Refrigeration and air conditioning: transport refrigeration – HFCs (I.17, 2016) (I.17, 2015) Transparency	Include information in the NIR on how HFC emissions from transport refrigeration have been estimated across the time series.	Resolved. Malta included relevant information in the NIR (chapter 4.7.1.3.2).
I.14	2.F.2 Foam blowing agents – HFCs (I.18, 2016) (I.18, 2015) Accuracy	Review the AD and ensure that there is a robust and consistent approach to collecting AD for this category in a way that eliminates any possibility of data gaps from some of the importers, and explain any significant inter-annual changes in emissions.	Not resolved. The AD have not yet been further checked and a robust and consistent approach to collecting AD was not ensured. The ERT notes that there could be a potential underestimation for this category since the emission estimates show a strong decrease for 2015 (37.4 per cent). Malta explained in the NIR (p.69) that it contacted all foam-related businesses registered with the Regulator for Energy and Water Services, but that the rate of response to the survey was rather low. The Party assumes that the vast majority of the market is covered by the AD obtained. The ERT considers the potential underestimation to be under the threshold of significance for application of adjustments since the difference from the higher estimate of emissions for previous years (2013–2014) amounts to lower than 0.05 per cent of the national total for 2015.
I.15	2.F.2 Foam blowing agents – HFCs (I.19, 2016) (I.19, 2015) Transparency	Explain in the NIR that HFC emissions from foam blowing agents do not occur and ensure that the notation key "NO" is used, where appropriate, in the NIR and in the CRF tables for emissions and AD that are not occurring.	Not resolved. The NIR indicates only that no emissions were reported for 2010 (chapter 4.7.2.1), with no information on the rest of the time series. AD have still been reported as "NO, NE" in CRF table 2(II)B-Hs2.
I.16	2.F.3 Fire protection – HFCs (I.20, 2016) (I.20, 2015) Transparency	Report HFC-227ea emissions from manufacturing, stocks and disposal for the period 1990–2003 as "NO" in CRF table 2(II).B-H and explain in the NIR that non-HFC halons were used prior to 2004.	Not resolved. The emissions have still been reported as "NE" in CRF table 2(II)B-Hs2 for the period 1990–2003.
I.17	2.F.3 Fire protection – HFCs (I.21, 2016) (I.21, 2015) Transparency	Report recovery of HFC-227ea emissions for the period 1990–2003 as "NO" in CRF table 2(II).B-H and explain the use of the notation key "NO" in the NIR.	Not resolved. The emissions have still been reported as "NE" in CRF table 2(II)B-Hs2 for the period 1990–2003. The NIR (chapter 4.7.3) does not contain additional information on the years prior to 2004.

ID#	*Issue and or problem classification*[a]	*Recommendation made in previous review report*	*ERT assessment and rationale*
I.18	2.G.3 N_2O from product uses – N_2O (I.22, 2016) (I.22, 2015) Completeness	Include N_2O emissions from use as a propellant in aerosol products in category 2.G.3 for the entire time series, or, if the Party considers these emissions insignificant, report them as "NE" and include a justification for doing so in the NIR, in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.	Resolved. The emissions have now been included in the inventory and described in the NIR (chapter 4.8.3).
Agriculture			
A.1	3. General (agriculture) (A.3, 2016) (A.3, 2015) (55, 2013) (66, 2012) Adherence to the UNFCCC Annex I inventory reporting guidelines	Provide information on the uncertainty of the agriculture sector.	Not resolved. Malta has not reported information on the uncertainties associated with the emission estimates for the agriculture sector.
A.2	3. General (agriculture) (A.4, 2016) (A.4, 2015) (56, 2013) (69, 2012) Consistency	Review the population data for all livestock categories, ensure time-series consistency and report on any recalculations.	Addressing. Malta has revised the population data and improved the time-series consistency of the data by using only two sources for population data. Malta continues to review the appropriateness of the AD and intends to reflect new values in the next annual submission.
A.3	3. General (agriculture) (A.22, 2016) (A.22, 2015) Consistency	Undertake a detailed review of the AD (animal populations) for the agriculture sector in order to identify the most appropriate data source, including for the base year, and use appropriate techniques as detailed in the 2006 IPCC Guidelines for the development of a consistent time series of AD.	Addressing. See ID# A.2 above.
A.4	3.A Enteric fermentation – CH_4 (A.5, 2016) (A.5, 2015) (57, 2013) (67, 2012) Accuracy	Justify the applicability of the Italian CH_4 EF for rabbits to the national circumstances in Malta.	Addressing. Malta has included a reference in the NIR for the CH_4 EF for rabbits (chapter 5.2.2.2), nevertheless it has not justified the selection of this EF in its NIR.
A.5	3.A.1 Cattle and 3.A.2 Sheep – CH_4 (A.23, 2016) (A.23, 2015) Transparency	Document in the NIR detailed information with respect to the assumptions used in the tier 2 estimates of CH_4 emissions from enteric fermentation for dairy cattle, cattle and sheep, in order to increase transparency and, to the extent possible, use a consistent approach to the use of assumptions in the estimate of CH_4 emissions from enteric fermentation, the estimate of CH_4 and N_2O emissions from manure management and the estimate of N_2O emissions from the application of	Resolved. Malta has provided information in the NIR on the tier 2 methodology that it used for estimating emissions for dairy cattle, other cattle and sheep (chapters 5.2.1 and 5.2.2).

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		organic N to soils.	
A.6	3.A.1 Cattle – CH_4 (A.24, 2016) (A.24, 2015) Transparency	Describe the methane conversion rate used for the estimation of CH_4 emissions from enteric fermentation for both dairy cattle and other cattle in the NIR and, where sufficient evidence exists, use a value other than the default, supported by appropriate documentation in the NIR.	Resolved. Malta has described in the NIR how it uses the IPCC default methane conversion rates in conjunction with an animal characterization to derive country-specific methane EFs for these animal categories (chapter 5.2.2.2).
A.7	3.A.4 Other livestock – CH_4 (A.25, 2016) (A.25, 2015) Transparency	Document in the NIR detailed information on the EF used to estimate CH_4 emissions from enteric fermentation for poultry.	Resolved. Malta has provided an explanation for the EF used for poultry in the NIR (chapter 5.2.2.2).
A.8	3.A.4 Other livestock – CH_4 (A.26, 2016) (A.26, 2015) Transparency	Include the reference for the CH_4 EF for enteric fermentation for rabbits in the NIR.	Resolved. Malta has included the reference in the NIR for the CH_4 EF for rabbits (chapter 5.2.2.2).
A.9	3.B Manure management – CH_4 and N_2O (A.27, 2016) (A.27, 2015) Transparency	Undertake a review of the data currently reported in CRF tables 3.B(a) and 3.B(b) with respect to allocation by climate region, typical animal mass (average), VS daily excretion (average) and CH_4 producing potential (average) for all livestock categories and, where relevant, include the required additional information for the tier 2 estimates, including a review of the appropriate use of notation keys.	Resolved. Malta has made great improvements to the estimation of N excretion values, in particular for dairy cattle and poultry, using a tier 2 methodology. Malta estimated MCFs and EFs for sheep, goats, horses, rabbits, layers and broilers using tier 1 methodologies. MCFs and EFs for the estimation of CH_4 emissions from manure management for swine have been reported in the NIR. Malta has reported the correct notation key "NO" as opposed to "NE" in CRF tables 3.B(a) and 3.B(b). Malta has allocated by climate region, typical animal mass (average), VS daily excretion (average) and CH_4 producing potential (average) for other livestock categories and, where relevant, included the required additional information for the tier 2 estimates.
A.10	3.B Manure management – CH_4 (A.9, 2016) (A.9, 2015) (60, 2013) Accuracy	Assess the applicability of the tier 1 default EFs used and, if necessary, implement a higher-tier methodology.	Resolved. Malta used a tier 2 methodology for dairy cattle, swine and poultry and tier 1 for other livestock with default values from the 2006 IPCC Guidelines.
A.11	3.B Manure management – N_2O (A.10, 2016) (A.10, 2015) (61, 2013) (73, 2012) Transparency	Replace the notation keys with data values in CRF table 3.B(b) and ensure that the information in the NIR and in the CRF tables is consistent.	Resolved. Malta has reported values for the N excretion rate in CRF table 3.B(b).
A.12	3.B Manure management – N_2O	Compare the country-specific N excretion values for all animal types with the IPCC	Not resolved. Malta has not provided a comparison of its country-specific

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	(A.11, 2016) (A.11, 2015) (62, 2013) Accuracy	defaults and explain the differences.	N excretion values for dairy cattle and poultry with the IPCC default values. During the review, the Party indicated that this recommendation is currently under consideration and will be reflected in the next NIR.
A.13	3.B Manure management – N_2O (A.14, 2016) (A.14, 2015) (64, 2013) Accuracy	Provide in the NIR information to substantiate and explain the underlying data for the country-specific N excretion rates for cattle and poultry presented in NIR table 6.4.	Resolved. Malta used IPCC default N excretion values for other cattle and poultry. Underlying data were provided for the country-specific N excretion value for dairy cattle in the NIR (section 5.3.2.1).
A.14	3.B.1 Cattle – CH_4 (A.28, 2016) (A.28, 2015) Transparency	Explain in the NIR the tier 2 methodology, assumptions and parameters (including VS and maximum methane-producing potential) used in the estimates of CH_4 emissions from manure management and demonstrate that these estimates are consistent with the estimates for enteric fermentation.	Addressing. Malta has explained in the NIR (chapter 5.3.2.1) the methods, assumptions and parameters used for estimating CH_4 emissions from manure management, but has not demonstrated that they are consistent with those used in estimating emissions from enteric fermentation.
A.15	3.B.1 Cattle and 3.D.a.2.a Animal manure applied to soils – N_2O (A.29, 2016) (A.29, 2015) Transparency	Explain in the NIR how N_2O emissions from manure management for dairy cattle, including the N excretion values used, and N_2O emissions from animal manure applied to soils are estimated, and how these estimates are consistent with the tier 2 approach used to estimate CH_4 emissions from enteric fermentation for dairy cattle.	Addressing. Malta has provided further details in the NIR (chapter 5.3.2.1) but further explanation is required of N_2O emissions from animal manure applied to soils and how the estimates are consistent with the tier 2 approach used to estimate CH_4 emissions from enteric fermentation.
A.16	3.B.1 Cattle and 3.D.a.2.a Animal manure applied to soils – N_2O (A.29, 2016) (A.29, 2015) Transparency	Make every effort to use a country-specific N excretion value for other cattle and sheep.	Resolved. As other cattle and sheep are not considered key categories, Malta does not need to apply a country-specific N excretion value for these livestock.
A.17	3.B.1 Cattle – N_2O (A.30, 2016) (A.30, 2015) Transparency	Describe in the NIR the values used to estimate the N loss due to volatilization of NH_3 and NO_X from manure management for dairy cattle and for other cattle.	Resolved. The values used to estimate N loss due to volatilization are listed in table 5.20 of the NIR.
A.18	3.B.1 Cattle – N_2O (A.31, 2016) (A.31, 2015) Transparency	Describe in the NIR the value and source of the EF used for estimating direct N_2O emissions from cattle manure.	Resolved. The value and sources of the EF is given in the NIR (chapter 5.3.2.1).
A.19	3.B.3 Swine – N_2O (A.13, 2016) (A.13, 2015) (64, 2013) Transparency	Provide in the NIR information regarding the assumptions used for calculating N_2O emissions from swine.	Resolved. Malta has provided information in the NIR (chapter 5.3.2.1) and the allocation of MMS in the CRF table for swine and other animal categories.
A.20	3.B.3 Swine – CH_4	Explain in the NIR the methodology and	Resolved. Malta has provided in NIR

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	(A.32, 2016) (A.32, 2015) Transparency	assumptions used for estimating CH_4 emissions from manure management for swine.	tables 5-13 and 5-14 the MCFs and EFs used for the estimation of CH_4 emissions from manure management for swine. Malta has further disaggregated and characterized the swine population and MMS.
A.21	3.B.4 Other livestock – CH_4 (A.33, 2016) (A.33, 2015) Transparency	Provide additional information on the use of the country-specific value for VS excretion for poultry in the NIR.	Resolved. Malta has provided further information in NIR table 5-14 on the country-specific value used for VS excretion for poultry.
A.22	3.B.4 Other livestock – N_2O (A.34, 2016) (A.34, 2015) Transparency	Provide a rationale in the NIR of future submissions for the use of the default value for N loss due to volatilization of NH_3 and NO_X from manure management for poultry in the estimation of indirect N_2O emissions from manure management for rabbits.	Not resolved. The NIR does not explain why the value for poultry is applied to rabbits.
A.23	3.D.a Direct N_2O emissions from managed soils – N_2O (A.16, 2016) (A.16, 2015) (66, 2013) (77, 2012) Consistency	Review the consistency of the time series and explain the trend in the use of synthetic fertilizers in the NIR.	Not resolved. Malta has not reported in the NIR the trend in the use of synthetic fertilizers.
A.24	3.D.a Direct N_2O emissions from managed soils – N_2O (A.17, 2016) (A.17, 2015) (66, 2013) Accuracy	Investigate the quality of the statistical data reported on the N content of the imported fertilizers and describe the corrections made to the statistical data in the NIR.	Not resolved. No additional information has been provided in the NIR regarding an investigation into the N content of the imported fertilizers (chapter 5.5.2.1, p.101, of the 2015 NIR, and chapter 5.5.2.1.1, p.92, of the 2017 NIR). Possible future improvements on this issue are also not addressed in the NIR. During the review, Malta indicated that efforts are being made to make the data available.
A.25	3.D.a.2.a Animal manure applied to soils – N_2O (A.35, 2016) (A.35, 2015) Transparency	Explain in the NIR that the implementation of the European Council nitrates directive(91/676/EEC) requires that all animals are housed throughout the year and therefore that direct and indirect N_2O emissions from manure for pasture, range and paddock do not occur.	Resolved. Malta has reported in the NIR (chapter 6.6.1) that with the transition from extensive goat and sheep herds to cattle in the 1950s, following outbreaks of Maltese fever, grazing eventually diminished and is now rarely practised, while the dairy industry has become mostly reliant on forage harvested as the main cereal crop. Further, according to Malta, on the basis of Legal Notice 321 of 2011 (Nitrates Action Programme Regulations, as amended), which requires that animals be housed under roofed

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			structures at all times, grazing in Malta is considered not to take place.
A.26	3.D.a.2.a Animal manure applied to soils – N_2O (A.36, 2016) (A.36, 2015) Transparency	Explain in the NIR the methodology, assumptions, AD and EFs used in the estimation of N_2O emissions from animal manure applied to soils.	Resolved. Malta has included the methodology, assumptions, and EFs used to estimate both direct (section 5.3.2.1, p.87) and indirect (section 5.3.2.1.1; p.89) N_2O emissions from animal manures applied to soils. AD for animal numbers are referenced in section 5.1 (pp.78–79).
A.27	3.D.a.2.a Animal manure applied to soils – N_2O (A.37, 2016) (A.37, 2015) Transparency	Undertake a representative survey of AWMS[b] for all livestock species as part of future improvements to the inventory and include in the NIR information on the AWMS used in the country.	Addressing. During the review, Malta stated that efforts are being made to address this. Malta has included information in the NIR on manure management systems (chapter 5.3.2) but has not carried out a survey.
A.28	3.D.a.5 Mineralization/immobilization associated with loss/gain of soil organic matter – N_2O (A.38, 2016) (A.38, 2015) Transparency	Explain in the NIR how N_2O emissions from mineralization/immobilization associated with the loss/gain of organic matter are estimated	Resolved. Malta has explained in the NIR (chapter 6.5) how N_2O emissions from mineralization/immobilization associated with the loss/gain of organic matter were estimated.
A.29	3.G Liming – CO_2 (A.39, 2016) (A.39, 2015) Transparency	Explain in the NIR the notation key used to report emissions from liming.	Resolved. Malta has reported "NO" for CO_2 emissions from liming in CRF table 3.G-I. Malta explained in the NIR (chapter 5.8.1) that liming does not occur in Malta owing to the high alkalinity of the soils.
A.30	3.H Urea application – CO_2 (A.40, 2016) (A.40, 2015) Completeness	Report CO_2 emissions from urea application to agricultural soils, or justify in the NIR that CO_2 emissions from urea application to agricultural soils are insignificant in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.	Resolved. Malta has demonstrated in the NIR (chapter 5.9.1) that CO_2 emissions from urea application are insignificant.
LULUCF			
L.1	4. General (LULUCF) (L.1, 2016) (L.1, 2015) (table 3, 72, 2013) (80, 2012) Completeness	Increase the completeness of the LULUCF sector estimates.	Resolved. See ID#s L.4, L.5, L.6 and L.16 below for the issues that have been resolved, demonstrating that the Party enhanced the completeness of the LULUCF sector. See ID# L.17 below for the completeness issue not resolved.
L.2	4. General (LULUCF) (L.5, 2016) (L.5, 2015) (75, 2013) Adherence to the	Use the notation key "NO" for any category, pool and/or gas for which the Party has information confirming that the category, pool or gas does not occur and provide such information in the NIR, and	Resolved. The notation keys "NO" and "NE" are used appropriately. "NE" has been used for categories, pools and/or gases for which there is no information on

ID#	Issue and/or problem classification[a]	Recommendation made in previous review report	ERT assessment and rationale
	UNFCCC Annex I inventory reporting guidelines	use the notation key "NE" for categories, pools and/or gases for which there is no information on emissions/removals or for which the net emissions/removals are negligible.	emissions/removals (e.g. dead organic matter in grassland converted to cropland and in cropland and settlements converted to grassland).
L.3	4. General (LULUCF) (L.8, 2016) (L.8, 2015) (77, 2013) (80, 2012) Adherence to the UNFCCC Annex I inventory reporting guidelines	Report the sources of the uncertainty values.	Not resolved. Information on the uncertainty of the AD and EFs and any other parameters applied to prepare the estimates for the LULUCF sector has not been reported. During the review, Malta indicated that it will try to address this issue for the next annual submission.
L.4	4. General (LULUCF) – CO_2 (L.17, 2016) (L.17, 2015) Completeness	Estimate the biomass carbon stock changes for: other grassland converted to annual cropland; maquis converted to annual cropland; annual cropland converted to settlements; maquis converted to settlements; maquis converted to other land; and annual cropland converted to other grassland.	Resolved. Biomass carbon stock changes have been reported for the land conversion categories identified.
L.5	4. General (LULUCF) – CO_2 (L.17, 2016) (L.17, 2015) Completeness	Separately report land-use change categories to and from maquis (including the initial biomass loss in maquis converted to perennial cropland) and other grassland.	Resolved. Initial biomass loss in maquis has been taken into account as per equations 2.15 and 2.16 in chapter 2 of the 2006 IPCC Guidelines.
L.6	4. General (LULUCF) – CO_2 (L.18, 2016) (L.18, 2015) Completeness	Estimate the SOC changes in mineral soils by applying the IPCC tier 1 methodology or a more precise methodology according to the national circumstances for: conversions among annual and perennial cropland; conversions between maquis (grassland) and other grassland; grassland (both subcategories) converted to cropland (both subcategories); grassland (both subcategories) converted to settlements; annual cropland converted to other grassland; annual cropland converted to settlements; perennial cropland converted to maquis (grassland); maquis (grassland) converted to other land; and settlements converted to other land.	Resolved. SOC changes have either been reported for the land conversion categories identified or appropriately reported as "NO".
L.7	Land representation (L.14, 2016) (L.14, 2015) Consistency	Construct a time series of land use and land-use change matrices for the time period 1971–1989 and report them in the NIR	Resolved. Land-use change matrices for 1971–1989 have been provided in NIR table 6-1). See ID# L.18 in table 5 for an issue identified in the land-use change matrix.
L.8	Land representation (L.14, 2016) (L.14, 2015) Consistency	Report in CRF tables 4.A, 4.B, 4.C, 4.D, 4.E and 4.F the correct AD values (namely the cumulative area changes to the relevant land-use categories for the last 20	Resolved. The correct AD values have been reported in CRF tables 4.A–4.F.

ID[a]	Issue and or problem classification[a]	Recommendation made in previous review report	ERT assessment and rationale
		years, including the reporting year, for each corresponding land-use conversion category and the area for the previous year minus the area losses in the reporting year plus the area gains that occurred 20 years before the reporting year for each corresponding land-use remaining category).	
L.9	Land representation (L.15, 2016) (L.15, 2015) Transparency	Report all information, including assumptions, on the method applied to construct a consistent land representation while using two different data sets (national statistics for cropland and forest land and CORINE land cover data for all other land uses).	Addressing. The information is partially provided in chapter 6.3 of the NIR with regard to the assumption to allocate the area changes to different land use conversions. Relevant information was not provided for the treatment (e.g. assumptions to apply one of the two data sets for specific categories), when land conversion data from CORINE land cover data and national statistics are not consistent.
L.10	Land representation (L.16, 2016) (L.16, 2015) Transparency	Report a confusion matrix between the CORINE land cover/land-use categories and the IPCC land-use categories, including the two grassland subdivisions: woody grassland and non-woody grassland.	Not resolved. The correspondence between the CORINE categories and the IPCC categories is not transparently shown in the NIR through the use of a confusion matrix.
L.11	4.A.1 Forest land remaining forest land – CO_2 (L.19, 2016) (L.19, 2015) Accuracy	Apply the IPCC default factors for estimating the carbon stock gains only if forest land is subject to harvesting or other disturbances.	Resolved. Forest land is not subject to harvesting or other disturbances and therefore the net carbon stock changes in the biomass pool can be assumed to be in equilibrium as implemented by Malta.
L.12	4.A.1 Forest land remaining forest land – CO_2 (L.19, 2016) (L.19, 2015) Transparency	Report information on the management plan for each forest land reserve, together with information on ongoing surveillance activities aimed at avoiding any actions that may disturb the forest equilibrium, including illegal harvesting and fuelwood gathering or disturbances to the forest to facilitate traps used for animals or hunting.	Resolved. Information has been provided in the NIR (chapter 6.4.1.1).
L.13	4.A.1 Forest land remaining forest land – CO_2 (L.19, 2016) (L.19, 2015) Transparency	Report any information collected from the surveillance system on any disturbance that has occurred on forest land and report the associated GHG emissions and subsequent removals.	Not resolved. During the review, the Party provided the Rural Development Plan 2007–2013 that supported the absence of logging or harvesting on forest land. Reference to this documentation has not been provided in the NIR.
L.14	4.B Cropland – CO_2 (L.20, 2016) (L.20, 2015) Accuracy	Report information in the NIR to justify the selected age of maturity (26 years) for perennial crops.	Not resolved. The information has not been provided in the NIR. During the review, the Party indicated that this will be addressed for the next

ID	*Issue and or problem classification[a]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
			annual submission.
L.15	4.B Cropland – CO_2 (L.20, 2016) (L.20, 2015) Accuracy	Estimate the initial biomass loss associated with the conversion of annual crops to perennial crops.	Resolved. Initial biomass loss in annual crop has been taken into account as per equations 2.15 and 2.16 from chapter 2 of the 2006 IPCC Guidelines.
L.16	4.C.1 Grassland remaining grassland – CO_2 (L.21, 2016) (L.21, 2015) Completeness	Estimate the biomass carbon stock changes in other grassland converted to maquis and maquis converted to other grassland, applying the IPCC tier 1 methodology or a more precise methodology according to national circumstances.	Resolved. The biomass carbon stock changes have been reported for all land conversions within grassland remaining grassland.
L.17	4 (III) Direct N_2O emissions from N mineralization/ immobilization and 4 (IV) Indirect N_2O emissions from managed soils – N_2O (L.22, 2016) (L.22, 2015) Completeness	Estimate direct and indirect N_2O emissions associated with SOC losses in mineral soils and report under the LULUCF sector the N_2O emissions originating from land categories that do not need to be reported under the agriculture sector (category 3.D (managed soils)) to avoid the double counting of N_2O emissions.	Not resolved. N_2O emissions from land converted to cropland have been reported as "IE"; however, information is not provided in the NIR or in CRF table 9 as to where these emissions are reported. During the review Malta explained that these emissions are accounted for in the agriculture sector. AD (areas) have been reported in CRF table 4.C and 4.E for both land remaining and land converted to grassland and settlements, but N_2O emissions from converted grassland and converted settlements in CRF table 4(III) have been reported as "NO". The ERT notes that N_2O emissions from cropland remaining cropland have been correctly reported under the agriculture sector, while other N_2O emissions should be reported under the LULUCF sector.
Waste			
W.1	5. General (waste) (W.1, 2016) (W.1, 2015) (83, 2013) (99, 2012) Adherence to the UNFCCC Annex I inventory reporting guidelines	Develop QA/QC procedures for the waste sector and report them in the NIR.	Not resolved. The ERT noted that for all waste categories except solid waste disposal, no sector-specific QA/QC measures were reported. The Party has indicated that it has developed a QMS but it has still not developed and reported on sector-specific QA/QC. During the review, Malta further indicated that the QMS will be used in the next inventory cycle and reported on in the 2018 annual submission. In addition to the implementation of the QMS, Malta referred to plans to develop formal data provision agreements with data providers, which would include clearly defined QA/QC

ID#	*Issue and or problem classification[a]*	*Recommendation made in previous review report*	*ERT assessment and rationale*
			responsibilities and which would be subject to a formal data provider performance evaluation (See ID# W.12 in table 5).
W.2	5.A Solid waste disposal on land – CH_4 (W.2, 2016) (W.2, 2015) (85, 2013) Accuracy	Either refer to a well-documented source (e.g. conduct a peer review of the study provided) and use the country-specific oxidation factor, or use the IPCC default oxidation factor and recalculate CH_4 emissions from SWDS.	Resolved. The Party has implemented this recommended change in the NIR (p.144). The IPCC default oxidation factor (0.0) has been used instead of the previous value of 0.6 for unmanaged solid waste landfills, and revisions to the MCF value have been made.
W.3	5.A Solid waste disposal on land – CH_4 (W.3, 2016) (W.3, 2015) (86, 2013) (102, 2012) Transparency	Provide detailed information in the NIR on CH_4 recovery for all years in which recovery is reported (e.g. the quantity of CH_4 recovered and method used to quantify CH_4).	Not resolved. CH_4 recovery has been reported for 2013 and 2014 (0.01 kt in each year). The Party has not provided a description of how CH_4 recovered was estimated.
W.4	5.A Solid waste disposal on land – CH_4 (W.10, 2016) (W.10, 2015) Accuracy	Justify, in accordance with the 2006 IPCC Guidelines, estimates of CH_4 recovered, or use the assumption that no recovery occurs.	Not resolved. The Party has not provided reliable references in its NIR to justify the CH_4 recovery estimates.
W.5	5.A Solid waste disposal on land – CH_4 (W.4, 2016) (W.4, 2015) (87, 2013) Transparency	Include the DOC content per type of degradable waste material in the NIR.	Not resolved. The Party has not provided this additional information in the NIR as recommended. During the review, the Party indicated that it will strive to address this matter for future annual submissions.
W.6	5.A Solid waste disposal on land – CH_4 (W.5, 2016) (W.5, 2015) (88, 2013) Transparency	Include information on the k values and half-lives of the waste fractions in the NIR.	Not resolved. The Party has not provided this additional information in the NIR as recommended. During the review, the Party indicated that it will strive to address this matter for future annual submissions.
W.7	5.A Solid waste disposal on land – CH_4 (W.9, 2016) (W.9, 2015) Transparency	Provide information on the waste composition, DOC content and k value for each waste type in the NIR.	Not resolved. The Party has not provided this additional information in the NIR as recommended. During the review, the Party indicated that it will strive to address this matter for future annual submissions.
W.8	5.A Solid waste disposal on land – CH_4 (W.11, 2016) (W.11, 2015) Adherence to the UNFCCC Annex I inventory reporting guidelines	Correct the DOC value reported for 2004 in CRF table 5.A.	Not resolved. The Party has not corrected the 2004 value for DOC reported in CRF table 5.A.
W.9	5.A.2 Unmanaged	Provide estimates using a country-specific	Resolved. The Party has developed a

ID#	Issue and or problem classification[a]	Recommendation made in previous review report	ERT assessment and rationale
	waste disposal sites – CH_4 (W.12, 2016) (W.12, 2015) Accuracy	MCF to reflect the aerobic conditions in unmanaged landfills and the default oxidation factor value (0) for unmanaged landfills.	country-specific MCF value for unmanaged waste based on measured gas composition at the Maghtab landfill as recommended, but improvements should be made to the reporting of these values in the NIR and CRF tables. See ID# W.15 in table 5.
W.10	5.D Wastewater treatment and discharge – N_2O (W.13, 2016) (W.13, 2015) Transparency	Explain in the NIR the methodology, assumptions, AD and EFs used to estimate N_2O emissions from pig slurry entering wastewater treatment plants.	Addressing. The ERT welcomes the continued reporting of N from pig slurry in the estimate of N_2O emissions from domestic wastewater treatment and discharge. The ERT notes the inclusion of explanatory information on the methods used to estimate N_2O from wastewater treatment plants and effluent in the NIR (chapter 7.5.1.2.2) and concludes that this discussion could be enhanced. See ID# W.17 in table 5.
KP-LULUCF			
KL.1	General (KP-LULUCF) (KL.1, 2016) (KL.1, 2015) Transparency	Report for each KP-LULUCF activity the following information in the NIR: (1) a description of how the definition of the activity has been implemented and applied consistently over time; (2) the methods used to calculate the carbon stock changes and GHG emission and removal estimates for each activity; (3) information on whether indirect and natural GHG emissions and removals have been factored out of the calculations; and (4) information that demonstrates that the activity has occurred since 1 January 1990 and is human-induced.	Addressing. The second recommendation has been partially addressed in chapter 11 of the NIR. During the review, the Party indicated that efforts would be made to address this further in the next annual submission.
KL.2	General (KP-LULUCF) (KL.1, 2016) (KL.1, 2015) Transparency	Report information in the NIR on conversion of natural forest to planted forest.	Not resolved. No additional information was provided in the NIR. During the review, Malta indicated that conversion of natural forest to planted forests does not occur in Malta and that this will be further clarified in the next NIR.
KL.3	Deforestation (KL.3, 2016) (KL.3, 2015) Transparency	Justify in the NIR the absence of deforestation since 1990.	Addressing. No additional information has been provided in the NIR. During the review, Malta provided CORINE land cover data for the reporting period, which demonstrated the non-occurrence of deforestation and can be reflected in the NIR.
KL.4	Forest management	Report in the NIR the definitions of	Resolved. Relevant information has

ID[a]	*Issue and or problem classification*[a]	*Recommendation made in previous review report*	*ERT assessment and rationale*
	(KL.4, 2016) (KL.4, 2015) Transparency	"planted forest" and "natural forest" in accordance with the good practice established by the IPCC.	been provided in chapter 11.1.1 of the NIR.
KL.5	Forest management (KL.5, 2016) (KL.5, 2015) Accuracy	Identify the areas that meet the forest definition and that are not reported under any KP-LULUCF activity and report on the impact of such exclusion on the accounting.	Not resolved. No additional information has been provided in the NIR. During the review, the Party indicated that this will be addressed in the next annual submission.
KL.6	Forest management (KL.6, 2016) (KL.6, 2015) Accuracy	Estimate and report a technical correction to the FMRL and enhance the transparency of the information reported on the technical correction by ensuring that the following information is included in the NIR: (a) The rationale for calculating the $FMRL_{corr}$; (b) The methods used to calculate the $FMRL_{corr}$ (including all background data and parameters used); (c) The results (i.e. the $FMRL_{corr}$ and the technical correction value) and a discussion of the differences between the $FMRL_{corr}$ and the FMRL (the causes and, where possible, the impact (percentage) of each cause). The ERT notes that, for this purpose, it is good practice to report a comparison of the recalculated estimates with the previous estimates (see table 2.7.2 of the Kyoto Protocol Supplement); (d) Information that demonstrates consistency between the $FMRL_{corr}$ and the GHG estimates submitted for forest management.	Resolved. Malta reported a technical correction (49.00). It has provided the relevant information regarding the calculation of and justification for the technical correction in chapter 11.5.3 of the NIR.
KL.7	Forest management (KL.7, 2016) (KL.7, 2015) Transparency	Report in the NIR information on the entities involved in the implementation of the forest management plan, including surveillance, and information on the entities involved in the monitoring of forest land, so that anthropogenic sources and sinks are identified and the associated emissions and removals are reported when they actually occur.	Addressing. According to the NIR (chapter 11.1.1) the two forest areas are under a management plan under the responsibility of the Environment and Resource Authority. Relevant information was not provided on the entities involved in the monitoring of the Mizieb woodland.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) where the issue and/or problem was raised. Issues are identified in accordance with paragraphs 80–83 of the UNFCCC review guidelines and classified as per paragraph 81 of the same guidelines. Problems are identified and classified as problems of transparency, accuracy, consistency, completeness or comparability in accordance paragraph 69 of the Article 8 review guidelines, in conjunction with decision 4/CMP.11. Malta was not subject to an individual inventory review in 2014. Therefore, 2014 is excluded from this table.

[b] AWMS is now referred to as MMS.

IV. Issues identified in three successive reviews and not addressed by the Party

8. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues included in table 4 have been identified in three successive reviews, including the review of the 2017 annual submission of Malta, and have not been addressed by the Party.

Table 4
Issues identified in three successive reviews and not addressed by Malta

ID[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed[b]*
General		
G.3	Develop a QA/QC plan, in particular tier 1 QC procedures, and provide information on the QA/QC plan in the NIR	5 (2011–2017)
G.6	Improve the transparency of the uncertainty analysis by including information on the assumptions used to calculate the uncertainty of AD and EFs at the category level	4 (2012–2017)
G.7	Provide information to explain how the uncertainty analysis is used to prioritize further inventory improvements	4 (2012–2017)
Energy		
E.1	Allocate AD and emissions to the appropriate subcategories in order to improve the comparability of the emission estimates with those of other Annex I Parties	4 (2012–2016)
E.2	Elaborate a QA/QC plan for the energy sector (which accounts for almost 90 per cent of total GHG emissions in the country) as required by the UNFCCC Annex I inventory reporting guidelines	4 (2012–2017)
E.3	Improve the description in the NIR of the category-specific QA/QC activities performed on the AD, with the objective of better understanding the links between the EU ETS, the energy balances and the data reported in the CRF tables	3 (2013–2017)
E.4	Include copies of the national energy balance for the latest reported year, outlining the final energy consumption by sector	3 (2013–2017)
E.6	Explain differences in CO_2 emissions which are above 2.0 per cent	3 (2013–2017)
E.10	Increase the transparency in the reporting of feedstocks and non-energy use of fuels, both in the CRF tables and in the NIR, by providing verifiable information that lubricants in transport (including disposal) and bitumen for road paving are not used in the country	3 (2013–2017)
E.11	For the only two power plants, use the plant-specific EFs as well as the NCVs available from the annual EU ETS reports as far back as possible	3 (2013–2017)
E.13	Report the estimates, including any relevant information such as NCVs, oxidation factors, EFs and AD used in the estimation of emissions, in the NIR	3 (2013–2017)
E.14	Allocate the AD and emissions to the appropriate subcategories, in line with the UNFCCC Annex I inventory reporting	5 (2011–2017)

ID[a]	Previous recommendation for the issue identified	Number of successive reviews issue not addressed[b]
	guidelines, in order to improve comparability with other Annex I Parties	
E.16	Make use of additional sources of information, such as Eurocontrol, which is based on higher-tier methods, as a supplementary QA activity to verify the fuel allocation for domestic and international uses	3 (2013–2017)
E.17	Obtain data on the NCVs and carbon content from the fuel suppliers in order to develop and use a more accurate EF when estimating CO_2 emissions from gasoline; if such data are not available, use the default CO_2 EF from the 2006 IPCC Guidelines that is applicable to European gasoline passenger cars	3 (2013–2017)
IPPU		
I.1	Develop and implement QA/QC procedures for the IPPU sector	4 (2012–2017)
I.2	Investigate the extent of the use of carbonates in the production of ceramics (at least one company seems to produce ceramic products in Malta), calculate the emissions, if appropriate, and report on the results in the NIR	3 (2013–2017)
I.4	Investigate the time-series inconsistency of the estimates of CO_2 emissions from road paving with asphalt, recalculate the emissions, if appropriate, and report on the findings in the NIR	4 (2012–2017)
I.5	Collect the necessary data to complete the background information tables for the reporting of F-gases (CRF table 2.II.F) in accordance with the UNFCCC Annex I inventory reporting guidelines	3 (2013–2017)
I.6	Proceed with the project to develop a better methodology for estimating emissions from refrigeration and air conditioning and report on the status in the NIR	3 (2013–2017)
I.7	As part of the planned project to develop a better methodology for estimating emissions from refrigeration and air conditioning, consider the import of F-gases in products and report on this in the NIR	3 (2013–2017)
Agriculture		
A.1	Provide information on the uncertainty of the agriculture sector	4 (2012–2017)
A.2	Review the population data for all livestock categories, ensure time-series consistency and report on any recalculations	3 (2013–2017)
A.4	Justify the applicability of the Italian CH_4 EF for rabbits to the national circumstances in Malta	4 (2012–2017)
A.12	Compare the country-specific N excretion values for all animal types with the IPCC defaults and explain the differences	3 (2013–2017)
A.23	Review the consistency of the time series and explain the trend in the use of synthetic fertilizers in the NIR	4 (2012–2017)
A.24	Investigate the quality of the statistical data reported on the N content of the imported fertilizers and describe the corrections made to the statistical data in the NIR	3 (2013–2017)

ID[a]	*Previous recommendation for the issue identified*	*Number of successive reviews issue not addressed[b]*
LULUCF		
L.3	Report the sources of the uncertainty values	4 (2012–2017)
Waste		
W.1	Develop QA/QC procedures for the waste sector and report them in the NIR	4 (2012–2017)
W.3	Provide detailed information in the NIR on CH_4 recovery for all years in which recovery is reported (e.g. the quantity of CH_4 recovered and method used to quantify CH_4)	4 (2012–2017)
W.5	Include the DOC content per type of degradable waste material in the NIR	3 (2013–2017)
W.6	Include information on the k values and half-lives of the waste fractions in the NIR	3 (2013–2017)
KP-LULUCF		
	No such issues for KP-LULUCF activities were identified	

[a] The review of the 2016 annual submission was held in conjunction with the review of the 2015 annual submission. Since the reviews of the 2015 and 2016 annual submissions were not successive reviews, but were held in conjunction, for the purpose of counting successive years in table 4, 2015/2016 are considered as one year. In addition, Malta was not subject to an individual inventory review in 2014. Therefore, 2014 is excluded from this table.

V. Additional findings made during the 2017 individual inventory review

9. Table 5 contains findings made by the ERT during the individual review of the 2017 annual submission of Malta that are additional to those identified in table 3.

Table 5
Additional findings made during the 2017 individual review of the annual submission of Malta

ID[a]	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and/or a problem[b]? If yes, classify by type*
General			
G.16	Annual submission	The CRF tables for Malta's 2017 annual submission were originally submitted on 8 May 2017 and the NIR was submitted on 29 May 2017. The Party further submitted revised CRF tables on 15 June 2017. The SEF tables were submitted on 26 September 2017. The ERT notes that the annual submission was not submitted on time (i.e. by 15 April 2017), although the submission was within six weeks in accordance with paragraph 3(a) of decision 15/CMP.1 in conjunction with decision 3/CMP.11. The ERT recommends that Malta submit all the elements of its next annual submission by 15 April 2018, as required by decision 15/CMP 1.	Adherence to reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol
G.17	Other	The ERT noted that several categories are reported as "NE" (namely, HFC-32 emissions from manufacturing and from disposal in transport refrigeration (2.F.1 Refrigeration and air conditioning), HFC emissions from disposal of closed cell foams (2.F.2 foam blowing agents) and CO_2 emissions from category 3.H. urea application). During the review, the ERT requested Malta to provide a list of insignificant emission sources not included in the inventory (reported as "NE"), providing also the likely emission levels of those not estimated sources. The Party has not provided such a list. The ERT notes that, according to the UNFCCC Annex I inventory reporting guidelines, for an insignificant emission source in terms of the overall level and trend of national emissions reported as "NE" in the inventory, the Party should provide in the NIR justifications for exclusion in terms of the likely level of emissions. Parties should use approximate AD and default IPCC EFs to derive a likely level of emissions for the respective category. The ERT concludes that, for categories reported as insignificant, the Party has not provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines. The ERT estimated, based on its own analysis, that the non-reported emissions are below the threshold for commencement of an adjustment procedure in accordance with paragraph 80(b) of the annex to decision 22/CMP.1 and therefore this issue was not included in the list of potential problems and further questions raised by the ERT. The ERT recommends that Malta provide emission estimates for the missing categories. If the Party considers that these emissions are insignificant in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines, provide reporting information on emission sources in the inventory that are considered insignificant, including their likely emission levels, in the next annual submission.	Completeness
G.18	QA/QC and verification	The ERT notes that limited information on category-specific QA/QC and verification activities was provided in the NIR. The ERT encourages the Party to implement category-specific QA/QC procedures focusing on key categories and on	Not an issue/problem

ID#	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and or a problem?[a] If yes, classify by type*
		categories for which significant methodological and data revisions have taken place and report the results in the NIR.	
G.19	Notation keys	The ERT notes that explanations in CRF table 9(a) on the use of the notation key "NE" and partially on the use of the notation key "IE" (e.g. for emissions from disposal in refrigeration and air conditioning, N_2O emissions from propellant for pressure and aerosol products use and CO_2 emissions from urea application) have not been provided. During the review, the Party indicated that efforts will be made to provide as exhaustive information as possible on the use of notation keys. The ERT recommends that Malta provide relevant explanations in CRF table 9(a) for all cases of the notation keys "NE" and "IE" being reported.	Transparency
G.20	National registry	In the NIR (chapter 14), the Party explained that Malta's national registry was connected to the international transaction log for the first time in 2016 and information on the consolidated EU registry changes has been provided in the NIR. However, during the review, in response to a question raised by the ERT regarding the omission of SEF tables from Malta's 2017 annual submission (see issue ID# G.15 in table 3), Malta mentioned that a fully functioning registry would be a prerequisite for the generation and submission of SEF tables, and the Party noted that this was not yet the case. The ERT noted that the registry is normally assessed annually to determine whether the appropriate requirements are being met and the results are contained in the SIAR. The ERT also noted that an SIAR has not been produced for the 2017 annual submission because the SEF tables were not submitted in a timely manner (they were submitted on 26 September 2017). However, the results of the independent assessment report of the national registry of Malta, produced in conjunction with Malta's report to facilitate the calculation of its assigned amount, concluded that the registry is deemed sufficiently compliant with the registry requirements defined in decisions 13/CMP.1 and 5/CMP.1. The ERT recommends that the Party implement changes in the procedures related to the national registry to ensure the timely submission of the SEF tables, and ensure that those changes are reported in the 2018 NIR in accordance with decision 15/CMP.1, annex, paragraph 22.	Adherence to reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol
Energy			
E.24	1.A. Fuel combustion – sectoral approach – gaseous and liquid fuels – CO_2, CH_4 and N_2O	The Party has reported the use of gaseous fuels for 2001 onward using the sectoral approach. During the review, the Party elaborated that the fuel is actually propane. The ERT notes that propane is a type of LPG and as such it should be classified as liquid fuel. The ERT recommends that the Party report the consumption of and emissions from propane as a liquid fuel (LPG).	Yes. Comparability
E.25	1.A.1.a Public electricity and heat production –	For 1990–1995, Malta reported a CH_4 IEF of 300 kg/TJ, the highest of all reporting Parties (ranging from 0.44–10.0 kg/TJ) and well above the IPCC default range of 0.3–3 kg/TJ, although no source was given for the value. During the review, the Party responded that this issue is being investigated and will be corrected for the next annual	Yes. Accuracy

ID[a]	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and or a problem*[20] *If yes, classify by type*
	solid fuel – CH_4	submission. The ERT recommends that the Party justify in the NIR the use of a country-specific EF or use the IPCC default EF (1 kg/TJ) until it develops a country-specific EF.	
E.26	1.A.3.a Domestic aviation – liquid fuels – N_2O	The N_2O IEF reported by Malta (0.60 kg/TJ) for aviation gasoline is the lowest among reporting Parties (which, excluding Malta, for 2015 ranged from 0.8 kg/TJ to 196.73 kg/TJ) and lower than the IPCC default (2 kg/TJ). Similarly, the N_2O IEF for jet kerosene (0.6 kg/TJ in 2015) is the second lowest among reporting Parties (which ranged from 0.47 kg/TJ to 12.42 kg/TJ) and lower than the IPCC default of 2 kg/TJ. The NIR (p.39) states that, for aviation, EFs are based on the *EMEP/EEA air pollutant emission inventory guidebook 2009*. During the review, the Party responded that this issue is being investigated and will be corrected for the next annual submission. The ERT believes that future ERT's should consider this issue further to ensure that there is not an underestimate of emissions from this activity. The ERT recommends that the Party use an IPCC default EF or justify in the NIR the use of a country-specific EF.	Yes. Accuracy
E.27	1.A.3.b Road transportation – liquid fuels – CO_2, CH_4 and N_2O	Malta has estimated road transport emissions for the period 2005–2015 using the COPERT V model. The 2006 IPCC Guidelines (volume 2, p.3.10) state that emissions of CO_2 are best calculated on the basis of the amount and type of fuel combusted (taken to be equal to fuel sold), and that if both fuel sold data and vehicle kilometres are available it is important to check that they are comparable. It is good practice to perform this validation step if vehicle kilometre data are available. The ERT recommends that Malta calculate CO_2 emissions from fuel sold in accordance with the 2006 IPCC Guidelines and apply the procedure for validating vehicle-kilometres travelled with fuel statistics data, and correct the data if necessary, before estimating CH_4 and N_2O emissions using the COPERT V model, and describe this procedure and the results in the NIR.	Yes. Accuracy
E.28	1.A.3.b.i Cars – liquid fuels – CO_2 and CH_4	Table 3-7 of the NIR states the EFs for biodiesel are 70,800 kg CO_2/TJ and 3.0 kg CH_4/TJ. However, the IEFs reported in CRF table1.A(a)s3 for category 1.A.3.b.i biomass are 74.10 t CO_2/TJ and 9.50 kg CH_4/TJ. During the review, the Party reported that the values reported in the CRF table were estimated using the COPERT V model and that the model is restricted in its functions to estimate emissions from pre-blended diesel; in particular it does not estimate the consumption figures separately for the exact quantities that are input but assumes pre-set blends, and this results in CO_2 and CH_4 IEFs that are closer to those of diesel. The Party also reported that in order to tackle this issue, discussions are under way with EMISIA (the entity that developed the COPERT model) with a view to improving the accuracy of the model with respect to biofuels. The ERT recommends that the Party correct the discrepancies between the NIR and the CRF tables and add a description in the NIR of the treatment of biodiesel in the COPERT V model.	Yes. Transparency

ID[a]	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and or a problem[b]? If yes, classify by type*
E.29	1.A.3.b.i Cars – liquid fuels – N_2O	Table 3-7 of the NIR states that, for 2015, a value of 0.60 kg/TJ was used as the biodiesel N_2O EF (which matches the value reported in CRF table1.A(a)s3), although no source was given for the value. While there is no default N_2O EF for biodiesel specifically, the ERT noted that the 2006 IPCC default N_2O EF for diesel is 3.9 kg/TJ. During the review, the Party reported that emissions from all fuels used for road transportation for the period 2005–2016 were estimated using the COPERT V model using a tier 3 approach, while to date emissions covering the period 1990–2004 have been estimated using a tier 1 approach with an EF from the 2006 IPCC Guidelines (3.9 kg/TJ). Although a default EF is not available in the 2006 IPCC Guidelines, as Malta has elected to report emissions from biodiesel, the ERT recommends that the Party justify in the NIR its use of the country-specific N_2O EF for biodiesel.	Yes. Transparency
E.30	1.A.3.d Domestic navigation – liquid fuels – CO_2, CH_4 and N_2O	The inter-annual change in the residual fuel oil consumption for recent years has been identified as significant, in particular the 99.4 per cent increase between 2012 (150.25 TJ) and 2013 (299.64 TJ) and the subsequent 52.2 per cent decrease between 2013 and 2014 (143.37 TJ). During the review, the Party explained that the data sources used to collect data pertaining to marine bunker fuels as well as the methodology used to disaggregate between international navigation and domestic navigation have been changed a number of times in order to: (a) obtain data from more reliable sources; (b) adopt a more refined disaggregation methodology; and (c) improve consistency throughout the time series. The ERT recommends that the Party document the changes of data sources and methodology in the NIR and also describe in the NIR how the consistency of the time series is maintained. The ERT also recommends that the Party describe in the NIR the factors contributing to the significant inter-annual variation in the consumption of residual fuel oil.	Yes. Transparency
IPPU			
I.19	2.F.1 Refrigeration and air conditioning – HFCs	The ERT noted that the emissions from HFC-134a from mobile air conditioning have been reported as "IE" in CRF table 2(II)B-Hs2. From the NIR it is not clear where these emissions were reported. The NIR (p.63) mentioned that "R134a quantities used in mobile air conditioning are first calculated for mobile air conditioning and the remaining quantities are attributed to the commercial sector." During the review, Malta explained that mobile air conditioning emissions are included under transport refrigeration. The ERT recommends that Malta report emissions from mobile air conditioning separately in subcategory 2.F.1.e mobile air conditioning in order to ensure transparency and comparability.	Yes. Comparability
I.20	2.G.1 Electrical equipment – SF_6	The ERT noted that the SF_6 emissions from electrical equipment vary considerably more in the period 2010 onward than in the period before and that Malta explained the variations in its NIR for 2003 and 2011 as caused by an incident in 2003 and a leak in 2011. The ERT noted that no explanation has been given for the peak in 2013. During the review, Malta explained that SF_6 use in the sector amounts to very low actual amounts of SF_6 in operation and that thus small incidents go unreported, but the effects on GHG emissions are still reported in the inventory and	Yes. Transparency

ID[a]	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[b] If yes, classify by type
		could cause such outliers. Malta also explained that the inventory agency has no information on specific incidents, apart from what is reported in the NIR, but that more details on specific incidents and information on the frequency of incidents in general has been requested. The ERT recommends that Malta collect information on incidents that may lead to spikes in emissions and report on them in the NIR. The ERT also recommends that Malta include checks (e.g. with the data suppliers) in its QC procedures in case of variations and outliers and report on the outcome of those checks in the NIR.	
Agriculture			
A.31	3.A.2 Sheep – CH_4	Malta used a tier 2 methodology for calculating CH_4 emissions from enteric fermentation for sheep. Malta referenced equation 10.16 from the 2006 IPCC Guidelines as the methodology used for the calculation of gross energy, but explained during the review that the net energy to produce wool is excluded from the calculation because sheep in Malta are not reared for their wool. Malta also stated in the NIR that the coefficient for pregnancy for mature ewes is 0.113 (table 5.5) and referenced IPCC table 10.7, but it was not clear how the value was derived. During the review, Malta explained that country-specific values for single and twin pregnancies (0.1873 and 0.7853, respectively) were obtained from a study by Valletta (2011). These were used together with the constants from IPCC table 10.7 and the corresponding equation from the 2006 IPCC Guidelines to calculate the coefficient for pregnancy value of 0.113. The ERT commends Malta for using a tier 2 approach to calculate enteric fermentation emissions from sheep. The ERT recommends that Malta explain in the NIR that the net energy to produce wool is excluded from the calculation and how the coefficient for pregnancy was derived.	Yes. Transparency
A.32	3.B.1 Cattle – CH_4 and N_2O	The ERT observed that in table 5-18 of the NIR Malta reported default N excretion values for poultry from Eastern Europe and assumed that manure was handled via solid storage. During the review, Malta was asked to justify its assumption of solid storage in temperate regions (19 °C) and the application of Eastern European factors in equation 10.23 of the 2006 IPCC Guidelines. Malta responded that the use of Eastern European values reflects the approach used by the previous inventory compiler for the agriculture sector. As part of the ongoing improvement of the emission estimation for the sector, values allocated by region/temperature are currently being changed to Western European ones at 19 °C (given that this is the mean temperature for Malta) and changes will be reflected in the next annual submission. Further, Malta stated that table 5.18 of the NIR gives the country-specific Nex rates taken from the Agricultural Waste Management Plan for the Maltese Islands. The Nex rates being used are 0.585 and 0.87 for broilers/other poultry and layers, respectively. The ERT believes that future ERT's should consider this issue further to ensure that there is not an underestimate of emissions from this activity. The ERT welcomes Malta's planned efforts and recommends that Malta update the factors and apply Western European default values to better reflect the circumstances of Malta. The ERT also recommends that Malta provide in the NIR the justification for the use of the updated Nex values.	Yes. Accuracy

ID[a]	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and or a problem?[a] If yes, classify by type*
A.33	3.B.1.3 Swine – CH_4	Malta used two IPCC MMS to calculate manure management CH_4 emissions from swine, namely "pit storage <1 month", with an MCF of 3 per cent, and "pit storage >1 month", with an MCF of 39 per cent. According to CRF table 3.B.(a)s2, this resulted in an overall MCF of 4.8 per cent, but it was unclear from the explanation in the NIR how the MCF was derived. During the review, Malta clarified that an MCF of 3 per cent is applied for 95 per cent of the manure and an MCF of 39 per cent is applied for the remaining 5 per cent of the manure that is applied to soil. This results in an overall MCF of 4.8 per cent for the years 2011–2015. For 1990–2010, the fraction of manure applied to soils was 10 per cent of total, resulting in an overall MCF of 6.6 per cent. The ERT recommends that Malta provide further clarification in the NIR on how the two manure management systems were applied to the different proportions of manure and how the reported value was derived.	Transparency
A.34	3.D.A.4 Crop residues – N_2O	The time series for N_2O emissions from crop residues returned to soils contains significant fluctuations. There is a large increase in estimated emissions between 2002 (0.0149 kt N_2O) and 2003 (0.0159 kt N_2O in 2003), followed by a sharp decrease (to 0.0147 kt N_2O in 2004) and another sharp increase between 2007 (0.0137 kt N_2O) and 2010 (0.0158 kt N_2O). Malta explained that the availability of agricultural land area and crop area data and crop dry matter yields for use in the GHG inventory is very limited. It also explained that the data sources and methods used for interpolation have now been revised for the next annual submission. The ERT recommends that Malta include the revised AD for crop residues in its annual submission and ensure the time-series consistency of its estimates.	Yes. Consistency
LULUCF			
L.18	4. General (LULUCF) – CO_2	The ERT noted that the total areas reported in CRF tables 4.B, 4.C, 4.E and 4.F are different from the total areas for each land-use category reported in the land-use change matrices in CRF table 4.1. During the review, Malta confirmed that it had applied a 20-year transition period to estimate the areas of land-use categories in CRF tables 4.B, 4.C, 4.E and 4.F, whereas the land-use change matrices reflect annual changes. The ERT is of the view that, even when the land-use change matrix is constructed on the basis of annual conversions, the sums of each land-use area in a land-use change matrix should include the cumulative areas during the transition period, and these total areas should equal those reported in CRF tables 4.B, 4.C, 4.E and 4.F. The ERT recommends that Malta maintain consistency of the total areas for each land-use category between the land transition matrix in CRF table 4.1 and CRF tables 4B, 4C, 4E and 4F by including the land areas under conversion in the land-use change matrices.	Yes. Consistency
L.19	4.E.2.3 Grassland converted to settlements – N_2O	The ERT noted that "IE" is reported for carbon stock change under grassland converted to settlements for living biomass gains and losses, and mineral soils. However, CRF table 9 does not indicate where the emissions are reported. During the review, Malta explained that the emissions were reported under other subcategories of land converted to settlements. The ERT also noted other instances of the use of "IE" that are not explained in CRF table	Yes. Comparability

ID[a]	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and or a problem?[20] If yes, classify by type
		9. The ERT recommends that Malta report in CRF table 9 the information required in relation to the use of the notation key "IE" for grassland converted to settlements.	
L.20	4 (IV).1 Atmospheric deposition – N_2O	The ERT noted that Malta reported "IE" for N_2O emissions from atmospheric deposition and from N leaching and run-off. However, the NIR and CRF tables do not indicate where the emissions are reported. During the review, the Party indicated that the emissions were reported under the agriculture sector. The ERT recommends that Malta report in CRF table 9 that the N_2O emissions were included under the agriculture sector.	Yes. Transparency
Waste			
W.11	5. General (waste) – CH_4 and N_2O	The ERT found a number of typographical and data entry errors in Malta's 2017 annual submission. The following issues were identified: (a) The incorrect title of NIR table 7-2, which should be changed to "Recalculation of CH_4 emissions from Unmanaged Solid Waste Disposal on Land"; (b) The erroneous explanation of recalculations in chapter 7.4.5, where it was unclear whether recalculations to data for waste incineration took place; (c) The waste disposal data reported in CRF table 5.A that are inconsistent with the data reported in figure 17-3 of the NIR and that were used in the FOD model; (d) Incorrectly reported values for $F_{NON-CON}$ (0.4) and $F_{IND-COM}$ (0.25) in CRF table 5.D; during the review, the Party confirmed that it used the IPCC default values of 1.4 and 1.25, respectively; (e) Inconsistencies between the EFs reported in the NIR and the CH_4 and N_2O IEFs for municipal solid waste, clinical and industrial waste reported in CRF table 5.C; (f) An incorrectly described method in the NIR for the estimation of CH_4 emissions from anaerobic digestion. The ERT recommends that Malta investigate and correct the descriptions in NIR table 7-2, and the method used to estimate CH_4 emissions from anaerobic digestion. The ERT also recommends that the Party correct the waste disposal data reported in CRF table 5.A, the $F_{NON-CON}$ and $F_{IND-COM}$ values reported in CRF table 5.D and the CH_4 and N_2O EFs for municipal solid waste, clinical and industrial waste reported in CRF table 5.C.	Yes. Adherence to the UNFCCC Annex I inventory reporting guidelines
W.12	5. General (waste) –	The ERT acknowledges the efforts made by the Party to address the previous recommendation through the implementation of the QMS and the possible establishment of formal data provision agreements with data suppliers	Not an issue/problem

ID[1]	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and or a problem?[2] If yes, classify by type
	CH_4, N_2O and CO_2	(see ID# W.1 in table 3). The ERT encourages Malta to proceed with the implementation of the QMS and the development of data provision agreements.	
W.13	5. General (waste) – CH_4 and N_2O	The ERT notes there are a number of instances in the CRF tables where the notation key "IE" has been used with either inadequate or no further information provided in CRF table 9 as to the allocation of the emissions or recovery. Examples of poorly or unexplained use of "IE" include: (a) CH_4 and N_2O emissions from the incineration of the biogenic fraction of municipal solid waste reported in CRF table 5.C; (b) CH_4 captured for energy recovery and flaring reported in CRF table 5.A. During the review, the Party indicated that efforts will be made to provide as exhaustive information as possible on the use of "IE". The ERT recommends that Malta ensure all uses of the notation key "IE" in the waste sector are fully explained in CRF table 9.	Yes. Transparency
W.14	5.A Solid waste disposal on land – CO_2	The ERT notes that no data were reported in CRF table 5 on the long-term storage of carbon at waste disposal sites, annual change in long-term carbon storage, and annual change in carbon storage in HWP waste. During the review, Malta confirmed that the data available on HWP and long-term carbon storage have not yet been properly investigated and thus such estimates have not been reported to date. The ERT encourages Malta to make efforts to obtain data on the storage of carbon from HWP waste in SWDS and to report this information in CRF table 5. The ERT also encourages Malta to include discussion of this planned improvement under the category-specific planned improvements.	Not an issue/problem
W.15	5.A.2 Unmanaged waste disposal sites – CH_4	The Party has revised its estimates of CH_4 emissions from the disposal of solid waste in unmanaged landfills in response to a previous recommendation (see ID# W.9 in table 3) by developing a country-specific MCF value based on measured gas composition at the Maghtab landfill. However, while the ERT commends the Party for addressing the previous recommendation, it finds that insufficient information has been provided in the NIR and CRF tables in relation to the MCF and DOC_f values for unmanaged waste disposal. For example, in CRF table 5.A, the Party reported the notation key "IE" for the MCF and DOC_f for unmanaged waste disposal. Similarly, the Party did not provide quantitative information to support the adjusted MCF values used such as the gas composition measurements from the Maghtab landfill. The ERT recommends that Malta provide further quantitative information in the NIR regarding the country-specific MCF value applied, such as the time series of adjusted MCF values and the measured landfill gas composition from the Maghtab landfill. Furthermore, the ERT recommends that Malta replace the "IE" notation key for unmanaged waste disposal reported in CRF table 5.A with actual MCF and DOC_f values.	Yes. Transparency

ID[a]	*Finding classification*	*Description of the finding with recommendation or encouragement*	*Is finding an issue and or a problem[b]? If yes, classify by type*
W.16	5.B.2 Anaerobic digestion at biogas facilities – CH_4	The NIR states that CH_4 emissions from anaerobic digestion are captured and the portion used for energy is reported under the energy sector (chapter 7.3.2.2). However, in CRF table 5.B.1 CH_4 for energy recovery has been reported as "NO". During the review, Malta responded that the default IPCC value for CH_4 emissions from anaerobic digestion (0.8 g CH_4/kg) already takes account of CH_4 recovery. The ERT considers that the use of the notation key "NO" in CRF table 5.B.1 is not appropriate. The ERT recommends that Malta replace "NO" with "IE" if the IPCC default EF is applied and include information in CRF table 9 about the fact that recovery is included in the estimate of net emissions.	Yes. Transparency
W.17	5.D.1 Domestic wastewater – N_2O	The ERT welcomes the continued reporting of N from pig slurry in the estimate of N_2O emissions from domestic wastewater treatment and discharge (see ID# W.10 in table 3). The ERT notes the inclusion of explanatory information on the methods used to estimate N_2O from wastewater treatment plants and effluent in the NIR (chapter 7.5.1.2.2) and concludes that this discussion could be enhanced. Accordingly, the ERT recommends that Malta include AD in the NIR on the quantities of N from agricultural sources received at wastewater treatment plants. The ERT also recommends that the quantity of N in effluent reported in CRF table 5.D include the amount of N from agricultural sources. Further, the ERT encourages Malta to implement and document a balance-check with manure management data under the agriculture sector to ensure there is no double counting or omission in the estimates of N in wastewater and agriculture. This may be achieved through the provision of a table in the NIR showing N generated from manure management of swine (as reported in CRF table 3.B(b)) and the derivation of N_{AgS} (total nitrogen originating from slurry and liquid waste from animal husbandry introduced in the wastewater system) treated in domestic wastewater treatment plants. The table should show that all N from manure management of swine is accounted for under either category 3.B or 5.D.	Yes. Transparency
W.18	5.D.1 Domestic wastewater – N_2O	In the NIR (chapter 7.5.1.2.2) it has been reported that Malta applies a factor to account for the N removal efficiency of wastewater treatment plants in the calculation of N_2O emissions from effluent. The removal capacity of plants is reported as 70 per cent in the recalculation section of the NIR (chapter 7.5.1.5). No further information has been provided on the use of this factor in the NIR. During the review, it was confirmed that the figure of 70 per cent was suggested to MRA during the review held in 2016 by EU expert reviewers in accordance with EU legislation and is applied to take account of N in nitrates dissolved in the wastewater treated leading to the emission of N gas. The ERT recommends that Malta include in the NIR further quantitative and qualitative information on the N removal efficiency factor, including the source and justification for the value used and a time series of the values applied.	Yes. Accuracy
KP-LULUCF			
KL.8	Forest management –	According to the NIR (p.163), the areas reported for forest management are equivalent to the areas reported under category 4.A forest land. However, AD (area) for forest management have not been reported in CRF table 4(KP-I)B.1	Yes. Transparency

ID	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue and/or a problem?[a] If yes, classify by type
	CO_2	(areas have been reported as "NE"). During the review, the Party indicated that the area under forest management (0.072 kha) has been reported in table NIR-2. However, it is the view of the ERT that the AD must also be reported in CRF table 4(KP-I)B.1; otherwise this leads to an inconsistency in the CRF tables and a lack of transparency. The ERT recommends that Malta report AD for forest management in CRF table 4(KP-I)B.1.	

[a] Recommendations made by the ERT during the review are related to issues as defined in paragraph 81 of the UNFCCC review guidelines, or problems as defined in paragraph 69 of the Article 8 review guidelines. Encouragements are made to the Party to address all findings not related to such issues or problems.

VI. Application of adjustments

10. The ERT has not identified the need to apply any adjustments to the 2017 annual submission of Malta.

VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol

11. Malta has elected commitment period accounting and therefore the issuance and cancellation of units for KP-LULUCF activities is not applicable for the 2017 review.

VIII. Questions of implementation

12. No questions of implementation were identified by the ERT during the review.

Annex I

Overview of greenhouse gas emissions and removals for Malta for submission year 2017 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, as submitted by Malta

1. Tables 6–9 provide an overview of total greenhouse gas emissions and removals as submitted by Malta.

Table 6
Total greenhouse gas emissions for Malta, base year[a]–2015
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions including indirect CO_2 emissions[b]*		*Land-use change (Article 3.7 bis as contained in the Doha Amendment)[c]*	*KP-LULUCF activities (Article 3.3 of the Kyoto Protocol)[d]*	*KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR[e]*	*FM*
FMRL								–49.00
Base year	2 385.00	2 382.04	NA	NA	NA			
1990	2 385.00	2 382.04	NA	NA				
1995	2 569.85	2 566.78	NA	NA				
2000	2 664.26	2 661.11	NA	NA				
2010	3 021.16	3 019.21	NA	NA				
2011	3 117.20	3 115.01	NA	NA				
2012	3 235.97	3 233.55	NA	NA				
2013	2 904.58	2 901.92	NA	NA		NO	NE, NO	NE, NO
2014	2 933.16	2 930.27	NA	NA		NO	NE, NO	NE, NO
2015	2 229.99	2 226.87	NA	NA		NO	NE, NO	NE, NO

Note: Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

[a] Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases except NF_3, for which the base year is 1995. Malta has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol and FM under Article 3, paragraph 4, only the inventory years of the commitment period must be reported.

[b] The Party has not reported indirect CO_2 emissions in CRF table 6.

[c] The value reported in this column refers to 1990.

[d] Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely AR, and deforestation.

[e] CRF table 4(KP) is blank for 1990, but Malta did not elect any activities under Article 3, paragraph 4, of the Kyoto Protocol. For the years of the commitment period, "NE" and "NO" were reported.

Table 7

Greenhouse gas emissions by gas for Malta, excluding land use, land-use change and forestry, 1990–2015

(kt CO_2 eq)

	CO_2[a]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1990	2 170.72	154.96	56.34	NO, NE, IE, NA	NO, NA	NA, NO	0.01	NA, NO
1995	2 360.48	145.49	59.37	0.00	NO, NA	NA, NO	1.44	NA, NO
2000	2 417.83	173.85	61.26	6.70	NO, NA	NA, NO	1.47	NA, NO
2010	2 638.47	179.58	53.97	145.49	0.00	NA, NO	1.69	NA, NO
2011	2 725.75	167.53	48.10	169.02	0.00	NA, NO	4.59	NA, NO
2012	2 819.43	165.34	47.30	201.03	0.00	NA, NO	0.45	NA, NO
2013	2 482.00	155.34	45.58	216.32	0.00	NA, NO	2.68	NA, NO
2014	2 481.26	171.53	46.12	230.77	0.00	NA, NO	0.58	NA, NO
2015	1 756.91	178.02	44.74	247.00	0.00	NA, NO	0.19	NA, NO
Per cent change 1990–2015	**–19.1**	**14.9**	**–20.6**	**NA**	**NA**	**NA**	**1 679.6**	**NA**

Note: Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

[a] Malta did not report indirect CO_2 emissions in CRF table 6.

Table 8
Greenhouse gas emissions by sector for Malta, 1990–2015
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
1990	2 227.95	7.94	77.13	2.96	69.02	NA
1995	2 380.68	9.47	72.38	3.07	104.24	NA
2000	2 430.86	15.20	75.03	3.15	140.02	NA
2010	2 648.46	152.17	68.91	1.95	149.66	NA
2011	2 735.23	179.02	66.50	2.19	134.26	NA
2012	2 829.73	206.76	67.24	2.42	129.82	NA
2013	2 490.94	223.85	66.99	2.66	120.13	NA
2014	2 490.95	235.45	66.31	2.89	137.55	NA
2015	1 766.44	248.39	65.90	3.13	146.14	NA
Per cent change 1990–2015	**–20.7**	**3 029.7**	**–14.6**	**5.6**	**111.7**	**NA**

Notes: (1) Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions; (2) Malta did not report indirect CO_2 emissions in CRF table 6.

Table 9

Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, base year[a]–2015, for Malta

(kt CO_2 eq)

	Article 3.7 bis as contained in the Doha Amendment[b]	*Article 3.3 of the Kyoto Protocol*		*FM and elected Article 3.4 activities of the Kyoto Protocol*				
	Land-use change	*AR*	*Deforestation*	*FM*	*CM*	*GM*	*RV*	*WDR*
FMRL				–49.00				
Technical correction				49.00				
Base year	NA							
2013		NO	NO	NE, NO	NO, NE	NO	NO	NO
2014		NO	NO	NE, NO	NO, NE	NO	NO	NO
2015		NO	NO	NE, NO	NO, NE	NO	NO	NO
Per cent change Base year–2015					**NA**	**NA**	**NA**	**NA**

Note: Values in this table include emissions on lands subject to natural disturbances, if applicable.

[a] Malta has not elected any activities under Article 3, paragraph 4, of the Kyoto Protocol. For activities under Article 3, paragraph 3, of the Kyoto Protocol, and FM under Article 3, paragraph 4, only the inventory years of the commitment period must be reported. CRF table 4(KP) is blank for 1990.

[b] The value reported in this column refers to 1990.

2. Table 10 provides an overview of relevant key data for Malta's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10
Key relevant data for Malta under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

Key parameters	*Values*
Periodicity of accounting	(a) AR: commitment period accounting
	(b) Deforestation: commitment period accounting
	(c) FM: commitment period accounting
	(d) CM: not elected
	(e) GM: not elected
	(f) RV: not elected
	(g) WDR: not elected
Election of activities under Article 3, paragraph 4	None
Election of application of provisions for natural disturbances	No
3.5% of total base-year GHG emissions, excluding LULUCF	69.112 kt CO_2 eq (552.898 kt CO_2 eq for the duration of the commitment period)
Cancellation of AAUs, ERUs, CERs and/or issuance of RMUs in the national registry for:	
1. AR in 2015	NA
2. Deforestation in 2015	NA
3. FM in 2015	NA
4. CM in 2015	NA
5. GM in 2015	NA
6. RV in 2015	NA
7. WDR in 2015	NA

Annex II

Information to be included in the compilation and accounting database

Tables 11–13 include the information to be included in the compilation and accounting database for Malta. Data shown are from the original annual submission of the Party, including the latest revised estimates submitted, adjustments (if applicable) as well as the final data to be included in the compilation and accounting database.

Table 11
Information to be included in the compilation and accounting database for 2015, including on the commitment period reserve, for Malta
(t CO_2 eq)

	Original submission	*Revised estimates*	*Adjustment*	*Final*
CPR	8 369 793			8 369 793
Annex A emissions for 2015				
CO_2	1 756 911			1 756 911
CH_4	178 020			178 020
N_2O	44 745			44 745
HFCs	247 000			247 000
PFCs	0			0
Unspecified mix of HFCs and PFCs	NA, NO			NA, NO
SF_6	189			189
NF_3	NA, NO			NA, NO
Total Annex A sources	**2 226 865**			**2 226 865**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2015				
3.3 AR	NO			NO
3.3 Deforestation	NO			NO
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2015				
3.4 FM	NE, NO			NE, NO

Table 12
Information to be included in the compilation and accounting database for 2014, for Malta
(t CO_2 eq)

	Original submission	*Revised estimates*	*Adjustment*	*Final*
Annex A emissions for 2014				
CO_2	2 481 263			2 481 263
CH_4	171 530			171 530
N_2O	46 120			46 120
HFCs	230 768			230 768
PFCs	0			0
Unspecified mix of HFCs and PFCs	NA, NO			NA, NO
SF_6	585			585
NF_3	NA, NO			NA, NO

	Original submission	*Revised estimates*	*Adjustment*	*Final*
Total Annex A sources	**2 930 267**			**2 930 267**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2014				
3.3 AR	NO			NO
3.3 Deforestation	NO			NO
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2014				
3.4 FM	NE, NO			NE, NO

Table 13
Information to be included in the compilation and accounting database for 2013, for Malta
(t CO_2 eq)

	Original submission	*Revised estimates*	*Adjustment*	*Final*
Annex A emissions for 2013				
CO_2	2 481 998			2 481 998
CH_4	155 343			155 343
N_2O	45 581			45 581
HFCs	216 318			216 318
PFCs	0			0
Unspecified mix of HFCs and PFCs	NA, NO			NA, NO
SF_6	2 677			2 677
NF_3	NA, NO			NA, NO
Total Annex A sources	**2 901 916**			**2 901 916**
Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013				
3.3 AR	NO			NO
3.3 Deforestation	NO			NO
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013				
3.4 FM	NE, NO			NE, NO

Annex III

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which methods are included in the 2006 IPCC Guidelines that were reported as "NE" or for which the ERT otherwise determined that there may be an issue with the completeness of reporting in the Party's inventory are the following:

(a) CO_2 emissions from ceramics (see ID# I.2 in table 3);

(b) HFC and PFC emissions from imports of F-gases in products (see ID# I.7 in table 3);

(c) Direct and indirect N_2O emissions associated with SOC losses in mineral soils (see ID # L.17 in table 3).

Annex IV

Documents and information used during the review

A. Reference documents

Intergovernmental Panel on Climate Change reports

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html.

IPCC. 2014a. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/kpsg.

IPCC. 2014b. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Available at http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html.

Annual review reports

Reports on the individual review of the 2011, 2012, 2013, 2015 and 2016 annual submissions of Malta, respectively, contained in documents FCCC/ARR/2011/MLT, FCCC/ARR/2012/MLT, FCCC/ARR/2013/MLT, FCCC/ARR/2015/MLT and FCCC/ARR/2016/MLT.

Other

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at http://unfccc.int/resource/webdocs/agi/2017.pdf.

Annual status report for Malta for 2017. Available at http://unfccc.int/resource/docs/2017/asr/MLT.pdf.

EEA. 2009. *EMEP/EEA air pollutant emission inventory guidebook 2009: Technical guidance to prepare national emission inventories*. European Environment Agency Technical Report. No. 9/2009. ISSN 1725-2237.

Independent assessment report of the national registry of Malta. Available at http://unfccc.int/files/kyoto_protocol/registry_systems/registry_initialization/application/pdf/mt_iar_v1.0.pdf.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Malta. Available at http://unfccc.int/resource/docs/2017/irr/mlt.pdf.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Saviour Vassallo (Malta Resources Authority), including additional material on the methodology and assumptions used. The following documents[1] were also provided by Malta:

Malta Resources Authority. 2017. *Operations & Quality Manual*. Marsa: Malta Resources Authority.

[1] Reproduced as received from the Party.

Malta Resources Authority. June 2016. *Initial Report of Malta under the Kyoto protocol 2016.*

Malta Resources Authority. February 2007. National Rural Development Strategy for the Programming Period 2007-2013.

Sammut, Sonya. 2015. *Estimation of greenhouse gas emissions from agricultural activities for Malta's inventory*. Report prepared for The Malta Resources Authority Climate Change Unit Government of Malta.

Valletta, P.P. (2011). The establishment of the Local Sheep Population as a Breed. (Unpublished Diploma dissertation). University of Malta, Malta.